

**NAME OF THE WORK: PACKAGE NO.03
(CONSISTS OF 5 WORKS)**

First and Part Bill

Quality Control Reports

BOOK NO – 01



QC ABSTRACT

NAME OF WORK: Package No-03 (Consists of 5 works)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
Materials						
1	Cement	Fineness by dry sieving	One Test		1	1
		Fineness by Air permeability method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
3	Coarse aggregate(20 mm down size)	Water Absorption	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
4	Fine aggregate	Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
5	Steel	Material finer than 75 micron	One Test		1	1
		Bend test	One Test		1	1
		Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
6	KERB	ReBend test	One Test		1	1
		Core Compressive strength	One Test		1	1
		Corrected Cylinder Compressive strength	One Test		1	1
		Equivalent Cube Compressive strength	One Test		1	1
7	Precast (100mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1

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8	Precast (230mm)	Core Compressive Strength	One Test	1	1
		Corrected Cylinder Compressive Strength	One Test	1	1
		Equivalent Cube Compressive Strength	One Test	1	1
9	RCC(M20)	Compressive Strength(7days and 28days)	12 sets	24	24
10	WMM	Sieve Analysis	One Test	1	1
		Impact Value	One Test	1	1
		Flakiness Index	One Test	1	1
		Elongation Index	One Test	1	1
11	DBM	SIEVE ANALYSIS	One Test	1	1
		STRIPPING VALUE	One Test	1	1
		Flakiness Index	One Test	1	1
		Elongation Index	One Test	1	1
		IMPACT VALUE	One Test	1	1
		Specific gravity	One Test	1	1
		Water Absorption	One Test	1	1
		Marshal Stability	One Test	1	1
		Marshal flow	One Test	1	1
		Percent air Voids	One Test	1	1
		Percent Voids in mineral Aggregate	One Test	1	1
		Percent Voids filled with Bitumen	One Test	1	1
		Density	One Test	1	1
		Gradation	One Test	1	1
12	BC	SIEVE ANALYSIS	One Test	1	1
		STRIPPING VALUE	One Test	1	1
		Flakiness Index	One Test	1	1
		Elongation Index	One Test	1	1
		IMPACT VALUE	One Test	1	1
		Specific gravity	One Test	1	1
		Water Absorption	One Test	1	1
		Marshal Stability	One Test	1	1
		Marshal flow	One Test	1	1
		Percent air Voids	One Test	1	1
		Percent Voids in mineral	One Test	1	1
		Percent Voids filled with Bitumen	One Test	1	1
		Density	One Test	1	1
		Gradation	One Test	1	1
13	BITUMEN	Ductility	One Test	1	1
		Softening Point	One Test	1	1
		Penetration	One Test	1	1
		Flash Point	One Test	1	1
		Fire Point	One Test	1	1
14	TACK COAT	Rate of spread	One Test	1	1

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Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2023-02-09-01 Date: 11-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4.5):1988
IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability
IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11, (RA 2019) DETERMINATION OF DENSITY , Clause 6
Date of test : 09-02-23
Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	2.15	—
2	Finess by Air permeablity method (m ² /kg,Min)	282.2	225m ² /kg, Min
3	Density (gm/cc)	3.15	—
4	Standard Consistency (%)	29.0%	Not specified
5	Initial Setting time	185 minutes	Not less than 30 minutes
6	Final Setting time	270 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2023-02-09-01 Date: 09-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988 , IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard
Cement Paste, Clause 5
IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6
Date of test : 09-02-23
Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	3 Days	29.0N/mm ²	Not less than 27 N/mm ²
2	7 Days	39.5N/mm ²	Not less than 37 N/mm ²
3	28 Days	55.0N/mm ²	Not less than 53 N/mm ²

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type : 40mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 09-02-23

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	374	374	2.5	97.5	90-100
3	20 mm	6738	7112	47.4	52.6	30-70
4	10 mm	5274	12386	82.6	17.4	10-35
5	4.75 mm	2081	14467	96.4	3.6	0-5
6	Pan	533	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID

:

CP-2023-02-09-01

Date: 13-02-23

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.7	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.5	
3	Specific Gravity	2.65	—
4	Bulk Density(Loose) (Kg/l)	1.49	—
5	Bulk Density(Compacted) (Kg/l)	1.51	—
6	Water Absorption(%)	0.25	—

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2023-02-09-01 Date: 11-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type/ Size : 20mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 09-02-23

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	159	159	3.2	96.8	90-100
3	10 mm	2541	2700	54.0	46.0	25-55
4	4.75 mm	2117	4817	96.3	3.7	0-10
5	Pan	183	5000	100	0	-

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2023-02-09-01

Date: 11-02-23

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.6	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	14.8	
3	Specific Gravity	2.62	—
4	Bulk Density(Loose) (Kg/l)	1.50	—
5	Bulk Density(Compacted) (Kg/l)	1.55	—
6	Water Absorption(%)	0.28	—
7	Aggregate crushing Value(%)	26.6	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	24.3	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF FINE AGGREGATE

Date: 11-02-23

Lab ID : CP-2023-02-09-01
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type : Fine Aggregate
Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
Date of test : 09-02-23

Total weight taken		1000 grams				Requirement as per IS 383:2016			
Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	35	35	3.5	96.5	90-100	90-100	90-100	95-100
3	2.36 mm	172	207	20.7	79.3	60-95	75-100	85-100	95-100
4	1.18 mm	116	323	32.3	67.7	30-70	55-90	75-100	90-100
5	600 micron	201	524	52.4	47.6	15-34	35-59	60-79	80-100
6	300 micron	217	741	74.1	25.9	5-20	8-30	12-40	15-50
7	150 micron	183	924	92.4	7.6	0-10	0-10	0-10	0-15
8	Pan	76	1000	100.0	0.0	---	---	---	---

Result: The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2023-02-09-01

Date: 11-02-23

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.94	—
2	Specific Gravity	2.55	—
3	Material finer than 75 micron(%)	7.6	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF STEEL

Lab ID : CP-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type : A-one Gold
Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.
Date of test: : 09-02-23

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm ²)	(N/mm ²)	(%)		
1	A-one Gold	Fe550	8	0.391	564	656	20.0%	Satisfactory	Satisfactory
2	A-one Gold	Fe550	10	0.616	569	661	20.0%	Satisfactory	Satisfactory
3	A-one Gold	Fe550	12	0.888	576	673	20.0%	Satisfactory	Satisfactory

* The results obtained are satisfactory as per standard requirements.

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Spectro Chemical Analysis, Physical, Non Destructive All Type of Metal Testing

Lab ID : CP-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type / Grade : A-one Gold
Date of test : 09-02-23

CHEMICAL ANALYSIS

Sl. No.	Chemical Contents	8mm	10mm	12mm	Max. Limits as per IS:1786-2008, Gr. Fe 550
1	Carbon (C) %	0.141	0.130	0.144	0.300 Max
2	Phosphor (P) %	0.033	0.042	0.041	0.050 Max
3	Sulphur (S) %	0.035	0.043	0.043	0.055 Max
4	Sulphur & Phosphorus %	0.082	0.055	0.076	0.100 Max

Note : The above material confirms to ASI S S 304 with respect to elements analysed

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TEST REPORT OF CEMENT CONCRETE KERB STONE

Lab ID : CP-2022-12-31-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type /Size : CC Kerb Stone/ 450*165*400mm
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 09/02/2023
Grade of Kerb : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	Kg	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	A	77.05	165.24	2.864	4662	104.2	22.4	22.4	27.9
2	B	77.43	165.32	2.793	4708	101.5	21.6	21.6	26.9
3	C	77.25	165.87	2.815	4686	104.7	22.3	22.3	27.9

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type /Size : Precast Cover Slab - 100mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 09/02/2023
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.84	100.54	1.110	4758	102.3	21.5	20.0	25.0
2	Cover Slab-2	77.24	100.75	1.121	4685	105.1	22.4	20.9	26.1
3	Cover Slab-3	77.61	100.32	1.114	4730	104.8	22.2	20.6	25.8

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type /Size : Precast Cover Slab - 230mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 09/02/2023
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.45	230.15	2.111	4710	102.3	21.7	20.2	25.2
2	Cover Slab-2	77.68	230.51	2.130	4738	105.8	22.3	20.8	26.0
3	Cover Slab-3	77.44	230.11	2.112	4709	103.4	22.0	20.4	25.5

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-11-01 Date: 17/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 11-02-23
Customer ID : Drain Bottom Raft Concrete - Balaji layout, 7th Cross & 1st Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 17/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Balaji layout, 7th Cross & 1st Cross Road	M20	10/02/2023	17/02/2023	151.74 X 149.55 X 149.07	22693	8.259	426.4	18.8	18.7
2	Drain Bottom Raft Concrete - Balaji layout, 7th Cross & 1st Cross Road	M20	10/02/2023	17/02/2023	151.35 X 149.94 X 151.58	22694	8.447	429.7	18.9	
3	Drain Bottom Raft Concrete - Balaji layout, 7th Cross & 1st Cross Road	M20	10/02/2023	17/02/2023	150.38 X 150.15 X 151.36	22579	8.744	412.2	18.3	

* The results obtained are satisfactory as per standard requirements.

[Signature]

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-11-01 Date: 10/03/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 11-02-23
Customer ID : Drain Bottom Raft Concrete - Balaji layout, 7th Cross & 1st Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Balaji layout, 7th Cross & 1st Cross Road	M20	10/02/2023	10/03/2023	150.12 X 151.46 X 150.85	22736	8.545	525.7	23.1	22.9
2	Drain Bottom Raft Concrete - Balaji layout, 7th Cross & 1st Cross Road	M20	10/02/2023	10/03/2023	151.58 X 150.80 X 149.56	22858	8.640	510.0	22.3	
3	Drain Bottom Raft Concrete - Balaji layout, 7th Cross & 1st Cross Road	M20	10/02/2023	10/03/2023	150.80 X 151.70 X 149.74	22876	8.871	534.7	23.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-14-01 Date: 20/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Customer ID : Drain Bottom Raft Concrete - Balaji layout, provision store Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 20/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Balaji layout, provision store Road	M20	13/02/2023	20/02/2023	151.80 X 149.46 X 151.08	22689	8.307	421.7	18.6	18.6
2	Drain Bottom Raft Concrete - Balaji layout, provision store Road	M20	13/02/2023	20/02/2023	150.33 X 150.48 X 151.68	22623	8.741	420.0	18.6	
3	Drain Bottom Raft Concrete - Balaji layout, provision store Road	M20	13/02/2023	20/02/2023	150.09 X 150.31 X 149.10	22560	8.794	422.4	18.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-14-01 Date: 13/03/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Customer ID : Drain Bottom Raft Concrete - Balaji layout, provision store Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 13/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Balaji layout, provision store Road	M20	13/02/2023	13/03/2023	150.36 X 151.12 X 150.78	22723	8.990	539.3	23.7	23.3
2	Drain Bottom Raft Concrete - Balaji layout, provision store Road	M20	13/02/2023	13/03/2023	150.48 X 150.03 X 151.36	22577	8.396	511.0	22.6	
3	Drain Bottom Raft Concrete - Balaji layout, provision store Road	M20	13/02/2023	13/03/2023	149.33 X 150.47 X 150.58	22471	8.751	527.1	23.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-15-01 Date: 21/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-02-23
Customer ID : Drain Side Wall Concrete - Balaji layout, 7th Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Balaji layout, 7th Cross	M20	14/02/2023	21/02/2023	151.69 X 149.90 X 151.91	22737	8.300	417.8	18.4	18.5
2	Drain Side Wall Concrete - Balaji layout, 7th Cross	M20	14/02/2023	21/02/2023	149.92 X 150.93 X 150.28	22628	8.354	414.1	18.3	
3	Drain Side Wall Concrete - Balaji layout, 7th Cross	M20	14/02/2023	21/02/2023	149.08 X 151.48 X 151.61	22582	8.838	422.0	18.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-15-01 Date: 14/03/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-02-23
Customer ID : Drain Side Wall Concrete - Balaji layout, 7th Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 14/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Balaji layout, 7th Cross	M20	14/02/2023	14/03/2023	151.25 X 151.21 X 151.53	22871	8.121	534.1	23.4	23.3
2	Drain Side Wall Concrete - Balaji layout, 7th Cross	M20	14/02/2023	14/03/2023	149.80 X 151.38 X 151.10	22677	8.127	511.4	22.6	
3	Drain Side Wall Concrete - Balaji layout, 7th Cross	M20	14/02/2023	14/03/2023	149.57 X 151.81 X 149.58	22706	8.822	544.3	24.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-16-01 Date: 22/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Customer ID : Drain Side Wall Concrete - Balaji layout, provision store Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 22/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Balaji layout, provision store Road	M20	15/02/2023	22/02/2023	149.85 X 150.37 X 151.74	22533	8.644	415.4	18.4	18.6
2	Drain Side Wall Concrete - Balaji layout, provision store Road	M20	15/02/2023	22/02/2023	150.32 X 150.11 X 151.16	22566	8.906	428.1	19.0	
3	Drain Side Wall Concrete - Balaji layout, provision store Road	M20	15/02/2023	22/02/2023	149.08 X 149.25 X 151.86	22250	8.731	409.5	18.4	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-16-01 Date: 15/03/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Customer ID : Drain Side Wall Concrete - Balaji layout, provision store Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 15/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Balaji layout, provision store Road	M20	15/02/2023	15/03/2023	149.33 X 149.15 X 151.89	22272	8.746	530.4	23.8	23.1
2	Drain Side Wall Concrete - Balaji layout, provision store Road	M20	15/02/2023	15/03/2023	149.49 X 150.12 X 149.92	22442	8.836	496.9	22.1	
3	Drain Side Wall Concrete - Balaji layout, provision store Road	M20	15/02/2023	15/03/2023	150.29 X 149.48 X 150.93	22465	8.546	523.9	23.3	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-17-01 Date: 23/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-02-23
Customer ID : Drain Bottom raft Concrete - 1st D Cross- Shanubhoga Narayanappa Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 23/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	16/02/2023	23/02/2023	149.73 X 149.73 X 150.81	22419	8.483	414.9	18.5	18.4
2	Drain Bottom raft Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	16/02/2023	23/02/2023	151.82 X 151.19 X 149.00	22953	8.766	421.2	18.3	
3	Drain Bottom raft Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	16/02/2023	23/02/2023	149.14 X 149.67 X 149.95	22321	8.983	412.3	18.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-17-01 Date: 16/03/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-02-23
Customer ID : Drain Bottom raft Concrete - 1st D Cross- Shanubhoga Narayanappa Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 16/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	16/02/2023	16/03/2023	150.72 X 149.42 X 150.03	22521	8.706	535.4	23.8	23.3
2	Drain Bottom raft Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	16/02/2023	16/03/2023	151.67 X 149.98 X 150.77	22748	8.957	522.7	23.0	
3	Drain Bottom raft Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	16/02/2023	16/03/2023	151.02 X 149.75 X 151.84	22614	8.812	525.5	23.2	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-17-01 Date: 23/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-02-23
Customer ID : Drain Bottom raft Concrete - 2nd main Road, Shanubhoga Narayappa Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 23/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - 2nd main Road, Shanubhoga Narayappa Layout	M20	16/02/2023	23/02/2023	150.61 X 150.42 X 151.89	22655	8.551	422.9	18.7	18.5
2	Drain Bottom raft Concrete - 2nd main Road, Shanubhoga Narayappa Layout	M20	16/02/2023	23/02/2023	150.95 X 150.58 X 149.86	22730	8.324	425.7	18.7	
3	Drain Bottom raft Concrete - 2nd main Road, Shanubhoga Narayappa Layout	M20	16/02/2023	23/02/2023	150.74 X 150.61 X 151.08	22702	8.994	410.6	18.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-17-01 Date: 16/03/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 17-02-23

Customer ID : Drain Bottom raft Concrete - 2nd main Road, Shanubhoga Narayappa Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 16/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - 2nd main Road, Shanubhoga Narayappa Layout	M20	16/02/2023	16/03/2023	150.18 X 149.98 X 150.17	22524	8.580	537.7	23.9	<u>23.3</u>
2	Drain Bottom raft Concrete - 2nd main Road, Shanubhoga Narayappa Layout	M20	16/02/2023	16/03/2023	151.48 X 150.83 X 150.60	22847	8.396	506.8	22.2	
3	Drain Bottom raft Concrete - 2nd main Road, Shanubhoga Narayappa Layout	M20	16/02/2023	16/03/2023	150.18 X 149.61 X 151.20	22468	8.832	536.3	23.9	

* The results obtained are satisfactory as per standard requirements.

[Signature]

[Signature]
Assistant Executive Engineer
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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-17-01 Date: 23/02/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 17-02-23

Customer ID : Drain Side Wall Concrete - 1st Cross Road

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 23/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - 1st Cross Road	M20	16/02/2023	23/02/2023	150.61 X 150.42 X 151.89	22655	8.551	422.9	18.7	18.5
2	Drain Side Wall Concrete - 1st Cross Road	M20	16/02/2023	23/02/2023	150.95 X 150.58 X 149.86	22730	8.324	425.7	18.7	
3	Drain Side Wall Concrete - 1st Cross Road	M20	16/02/2023	23/02/2023	150.74 X 150.61 X 151.08	22702	8.994	410.6	18.1	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-17-01 Date: 16/03/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-02-23
Customer ID : Drain Side Wall Concrete - 1st Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 16/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - 1st Cross Road	M20	16/02/2023	16/03/2023	150.18 X 149.98 X 150.17	22524	8.580	537.7	23.9	23.3
2	Drain Side Wall Concrete - 1st Cross Road	M20	16/02/2023	16/03/2023	151.48 X 150.83 X 150.60	22847	8.396	506.8	22.2	
3	Drain Side Wall Concrete - 1st Cross Road	M20	16/02/2023	16/03/2023	150.18 X 149.61 X 151.20	22468	8.832	536.3	23.9	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-21-01 Date: 24/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Customer ID : Drain Bottom raft Concrete -2nd Main Road- Shanubhoga Narayanappa Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 24/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	24/02/2023	150.64 X 151.13 X 151.55	22767	8.920	413.3	18.2	18.2
2	Drain Bottom raft Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	24/02/2023	149.97 X 151.40 X 151.25	22706	8.823	415.1	18.3	
3	Drain Bottom raft Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	24/02/2023	149.13 X 151.82 X 149.91	22642	8.509	410.6	18.1	

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Lab ID : CP-2023-02-21-01 Date: 17/03/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 21-02-23

Customer ID : Drain Bottom raft Concrete -2nd Main Road- Shanubhoga Narayanappa Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 17/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	17/03/2023	151.88 X 151.46 X 150.14	23004	8.959	544.9	23.7	23.0
2	Drain Bottom raft Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	17/03/2023	150.95 X 150.46 X 151.18	22711	8.976	501.4	22.1	
3	Drain Bottom raft Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	17/03/2023	150.91 X 150.38 X 151.17	22694	8.952	527.5	23.2	

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Lab ID : CP-2023-02-21-01 Date: 24/02/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 21-02-23

Customer ID : Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 24/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	24/02/2023	151.61 X 149.19 X 149.09	22619	8.780	408.1	18.0	18.3
2	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	24/02/2023	150.82 X 151.58 X 151.52	22861	8.547	421.5	18.4	
3	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	24/02/2023	150.49 X 149.84 X 149.70	22548	8.815	417.7	18.5	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-21-01 Date: 17/03/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Customer ID : Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 17/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	17/03/2023	151.09 X 150.98 X 151.66	22811	8.964	533.7	23.4	23.1
2	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	17/03/2023	150.76 X 150.23 X 150.32	22649	8.564	515.4	22.8	
3	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	17/02/2023	17/03/2023	149.92 X 151.86 X 150.17	22767	8.850	528.0	23.2	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-21-01 Date: 25/02/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 21-02-23

Customer ID : Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 25/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	18/02/2023	25/02/2023	150.55 X 149.54 X 149.69	22513	8.687	415.8	18.5	18.8
2	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	18/02/2023	25/02/2023	151.96 X 149.38 X 151.89	22700	8.333	428.0	18.9	
3	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	18/02/2023	25/02/2023	149.86 X 149.95 X 150.29	22471	8.585	426.1	19.0	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-21-01 Date: 18/03/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 21-02-23
Customer ID : Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 18/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	18/02/2023	18/03/2023	151.70 X 151.88 X 149.25	23040	8.865	537.3	23.3	22.9
2	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	18/02/2023	18/03/2023	151.87 X 149.53 X 150.55	22709	8.927	506.0	22.3	
3	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	18/02/2023	18/03/2023	149.29 X 150.14 X 149.68	22415	8.939	521.0	23.2	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-21-01 Date: 27/02/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 21-02-23

Customer ID : Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 26/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	19/02/2023	26/02/2023	149.49 X 149.16 X 150.81	22297	8.357	403.0	18.1	18.2
2	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	19/02/2023	26/02/2023	151.54 X 151.53 X 149.97	22963	8.974	414.5	18.0	
3	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	19/02/2023	26/02/2023	149.65 X 149.41 X 150.68	22358	8.178	410.8	18.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-21-01 Date: 20/03/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 21-02-23

Customer ID : Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 19/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	19/02/2023	19/03/2023	150.49 X 150.27 X 149.31	22615	8.818	538.8	23.8	23.3
2	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	19/02/2023	19/03/2023	151.95 X 149.26 X 149.58	22679	8.750	516.5	22.8	
3	Drain Side Wall Concrete -2nd Main Road- Shanubhoga Narayanappa Layout	M20	19/02/2023	19/03/2023	149.08 X 151.21 X 149.73	22543	8.488	524.6	23.3	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-22-01 Date: 28/02/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 22-02-23

Customer ID : Drain Side Wall Concrete - 1st D Cross- Shanubhoga Narayanappa Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 28/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	21/02/2023	28/02/2023	150.69 X 150.28 X 150.27	22645	8.315	426.2	18.8	18.6
2	Drain Side Wall Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	21/02/2023	28/02/2023	150.61 X 150.79 X 151.89	22709	8.804	415.2	18.3	
3	Drain Side Wall Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	21/02/2023	28/02/2023	150.93 X 151.56 X 150.79	22875	8.467	425.8	18.6	

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-02-22-01 Date: 21/03/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 22-02-23

Customer ID : Drain Side Wall Concrete - 1st D Cross- Shanubhoga Narayanappa Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 21/03/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	21/02/2023	21/03/2023	149.59 X 151.75 X 149.88	22701	8.987	529.7	23.3	23.2
2	Drain Side Wall Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	21/02/2023	21/03/2023	150.48 X 150.30 X 150.38	22618	8.527	519.6	23.0	
3	Drain Side Wall Concrete - 1st D Cross- Shanubhoga Narayanappa Layout	M20	21/02/2023	21/03/2023	149.63 X 150.79 X 149.81	22561	8.799	526.5	23.3	

* The results obtained are satisfactory as per standard requirements.

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**TEST RESULTS OF GRADATION FOR WMM**

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Shanubhoga Narayanappa Layout
Date of test : 27-02-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	258	258	2.3	97.7	95-100
22.4	2398	2656	24.1	75.9	60-80
11.2	2178	4834	43.9	56.1	40-60
4.75	2248	7082	64.4	35.6	25-40
2.36	1285	8367	76.1	23.9	15-30
0.6	1265	9632	87.6	12.4	8-22
0.075	958	10590	96.3	3.7	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Shanubhoga Narayanappa Layout
Date of test : 27-02-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.5	301.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	76.1	73.4
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.6
5	Aggregate impact value	(B/A)*100	25.2	24.3
6	Aggregate impact value (Mean of two tests)	Percentage	24.8	

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Shanubhoga Narayanappa Layout
Date of test : 27-02-23

Result:

Index	Percentage of Flakiness and Elongation Index	Specified limits as per MORTH specification table 400-12
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.1%	
Combined Flakiness and Elongation Index for WMM	24.9%	

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : DBM-Plant (Dense Bituminous Macadam)
Date of test : 09-02-23
Weight of Sample : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	252	252	5.04	94.96	90-100
19	353	605	12.10	87.90	71-95
13.2	455	1060	21.20	78.80	56-80
4.75	1752	2812	56.24	43.76	38-54
2.36	405	3217	64.34	35.66	28-42
0.3	1340	4557	91.14	8.86	7-21
0.075	210	4767	95.34	4.66	2-8
PAN	233	5000	0.00	0	0

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID : CP-RW-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Date of test : 09-02-23

Table 500-6 : Physical Requirements for Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	11.2	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	10.4		
Strength	Aggregate Impact Value	22.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : DBM (Dense Bituminous Mecadam)
Date of test : 09-02-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	—

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : DBM(Dense Bitumnous Macadam)
Date of test : 09-02-23
Type of Binder : 60/70
% of Binder Used : 4.5%
Weight of Aggregate : 200.0 gm
Weight of Binder : 9 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements



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TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 09-02-23
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : BC(Bitumenous Concrete)
Date of test : 09-02-23

Type of Binder : 60/70
% of Binder Used : 5.4%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.8 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 09-02-23

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-02-09-01 Date: 13-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 09-02-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	—

* The results obtained are satisfactory as per standard requirements.



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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID : CP-RW-2023-02-09-01 Date: 11-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of test : 09-02-23

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	58	Min 45
2	Softening Point, °C	51.2	Min. 47°C
3	Ductility, cm	100	Min. 47 cm
4	Flash point, °C	312	Min. 220°C
	Fire point, °C	321	

* The results obtained are satisfactory as per standard requirements.

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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-03-31-01 Date: 01-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-03-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : 2nd Main Shanubhoga Narayanappa layout
Date of test : 31-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	478
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.70	4.80
7	Average percentage	%	4.75	



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Lab ID : CP-RW-2023-03-31-01

Date: 01-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	34	34	7.11	92.9	90-100
19	41	75	15.67	84.3	71-95
13.2	109	184	38.45	61.5	56-80
4.75	79	263	54.96	45.0	38-54
2.36	44	307	64.16	35.8	28-42
0.3	83	390	81.50	18.5	7-21
0.075	58	448	93.63	6.4	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 478

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	31	31	6.49	93.5	90-100
19	42	73	15.27	84.7	71-95
13.2	120	193	40.38	59.6	56-80
4.75	86	279	58.37	41.6	38-54
2.36	31	310	64.85	35.1	28-42
0.3	70	380	79.50	20.5	7-21
0.075	72	452	94.56	5.4	2-8

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd Main Shanubhoga Narayanappa layout
Date of test : 01-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.50	5.60
7	Average percentage	%	5.55	



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Lab ID : CP-RW-2023-04-01-01

Date: 03-04-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	26	26	5.5	94.5	90-100
9.5	54	80	16.9	83.1	70-88
4.75	129	209	44.0	56.0	53-71
2.36	56	265	55.8	44.2	42-58
1.18	43	308	64.9	35.1	34-48
0.6	30	338	71.2	28.8	26-38
0.3	33	371	78.2	21.8	18-28
0.15	27	398	83.9	16.1	12-20
0.075	42	440	92.7	7.3	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	38	38	8.0	92.0	90-100
9.5	80	118	24.9	75.1	70-88
4.75	109	227	47.9	52.1	53-71
2.36	40	267	56.3	43.7	42-58
1.18	30	297	62.7	37.3	34-48
0.6	41	338	71.3	28.7	26-38
0.3	40	378	79.7	20.3	18-28
0.15	32	410	86.5	13.5	12-20
0.075	30	440	92.8	7.2	4-10

* The results obtained are satisfactory as per standard requirements.



FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager



DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-04-01-01 Date: 02-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : Tack coat
Date of test : 01-04-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



FOR CIVIL Pro.

R KARTHIK RECHAN

Authorized Signatory

Quality Manager



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-04-05-01 Date: 06-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : KBR Infratech Road
Date of test : 05-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.60
7	Average percentage	%	4.55	



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Lab ID : CP-RW-2023-04-05-01

Date: 06-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	29	29	6.05	94.0	90-100
19	47	76	15.85	84.2	71-95
13.2	113	189	39.42	60.6	56-80
4.75	83	272	56.73	43.3	38-54
2.36	49	321	66.94	33.1	28-42
0.3	86	407	84.88	15.1	7-21
0.075	60	467	97.39	2.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	27	27	5.64	94.4	90-100
19	48	75	15.66	84.3	71-95
13.2	126	201	41.96	58.0	56-80
4.75	89	290	60.54	39.5	38-54
2.36	36	326	68.06	31.9	28-42
0.3	72	398	83.09	16.9	7-21
0.075	65	463	96.66	3.3	2-8

* The results obtained are satisfactory as per standard requirements.



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Quality Manager

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-04-06-01 Date: 07-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-04-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st D Cross Shanubhoga Narayanappa layout
Date of test : 06-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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R KARTHIK RECHAN
Authorized Signatory
Quality Manager



Lab ID : CP-RW-2023-04-06-01

Date: 07-04-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

:

474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	57	85	17.9	82.1	70-88
4.75	124	209	44.1	55.9	53-71
2.36	50	259	54.6	45.4	42-58
1.18	46	305	64.3	35.7	34-48
0.6	31	336	70.9	29.1	26-38
0.3	35	371	78.3	21.7	18-28
0.15	33	404	85.2	14.8	12-20
0.075	46	450	94.9	5.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

:

475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	34	34	7.2	92.8	90-100
9.5	78	112	23.6	76.4	70-88
4.75	101	213	44.8	55.2	53-71
2.36	46	259	54.5	45.5	42-58
1.18	32	291	61.3	38.7	34-48
0.6	42	333	70.1	29.9	26-38
0.3	44	377	79.4	20.6	18-28
0.15	36	413	86.9	13.1	12-20
0.075	32	445	93.7	6.3	4-10

* The results obtained are satisfactory as per standard requirements.

Assistant Engineer
Kodigehalli Sub. Division
BBMP, Bangalore



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Authorized Signatory
Quality Manager

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End of Report

**NAME OF THE WORK: PACKAGE NO.03
(CONSISTS OF 5 WORKS)**

Second and Part Bill

Quality Control Reports

BOOK NO – 02

VOLUME-I WARD-07



QC ABSTRACT

NAME OF WORK: Package No-03 (Consists of 5 works)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
Materials						
1	Cement	Fineness by dry sieving	One Test		1	1
		Fineness by Air permeability method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
2	Coarse aggregate(40 mm down size)	Compressive Strength	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
3	Coarse aggregate(20 mm down size)	Water Absorption	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
4	Fine aggregate	Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Material finer than 75 micron	One Test		1	1
		Core Compressive Strength	One Test		1	1
5	Steel	Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
		ReBend test	One Test		1	1
		Yield Test	One Test		1	1
6	Precast (100mm)	Tensile Test	One Test		1	1
		Bend test	One Test		1	1
		Core Compressive Strength	One Test		1	1
7	Precast (230mm)	Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
		Core Compressive Strength	One Test		1	1
8	RCC(M20)	Compressive Strength(7days and 28days)	8 sets	167.45	16	16



9	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
10	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
11	BC	Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
12	BITUMEN	Fire Point	One Test		1	1
13	TACK COAT	Rate of spread	One Test		1	1





TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988
IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability
IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11, (RA 2019) DETERMINATION OF DENSITY , Clause 6

Date of test : 28-11-22

Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	1.75	—
2	Finess by Air permeablity method (m ² /kg,Min)	281.4	225m ² /kg, Min
3	Density (gm/cc)	3.14	—
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	175 minutes	Not less than 30 minutes
6	Final Setting time	280 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.



FOR CIVIL Pro.

R. Karthik

R KARTHIK RECHAN

Authorized Signatory

Quality Manager

Page 1/1

****End of Report****

[Signature]
Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



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Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-11-28-01 Date: 26-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988 , IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard
Cement Paste, Clause 5
IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6
Date of test : 28-11-22
Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	3 Days	29.0N/mm ²	Not less than 27 N/mm ²
2	7 Days	38.5N/mm ²	Not less than 37 N/mm ²
3	28 Days	57.5N/mm ²	Not less than 53 N/mm ²

* The results obtained are satisfactory as per standard requirements.



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R. KARTHIK RECHAN
Authorized Signatory
Quality Manager

Page 1/1

****End of Report****


Assistant Executive Engineer

Kodagahalli Sub Division

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01 Date: 01-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : 40mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 28-11-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	242	242	1.6	98.4	90-100
3	20 mm	5437	5679	37.9	62.1	30-70
4	10 mm	4339	10018	66.8	33.2	10-35
5	4.75 mm	4649	14667	97.8	2.2	0-5
6	Pan	333	15000	100.0	0	---



Assistant Executive Engineer

Kodigehalli Sub Division

BEMP, Bangalore



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01

Date: 01-12-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	10.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.6	
3	Specific Gravity	2.62	—
4	Bulk Density(Loose) (Kg/l)	1.47	—
5	Bulk Density(Compacted) (Kg/l)	1.51	—
6	Water Absorption(%)	0.22	—

* The results obtained are satisfactory as per standard requirements.



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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

Page 2/2

****End of Report****



Assistant Executive Engineer



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type/ Size : 20mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 28-11-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	240	240	4.8	95.2	90-100
3	10 mm	2567	2807	56.1	43.9	25-55
4	4.75 mm	2030	4837	96.7	3.3	0-10
5	Pan	163	5000	100	0	—



Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01

Date: 30-11-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.3	
3	Specific Gravity	2.65	—
4	Bulk Density(Loose) (Kg/l)	1.5	—
5	Bulk Density(Compacted) (Kg/l)	1.52	—
6	Water Absorption(%)	0.23	—
7	Aggregate crushing Value(%)	22.7	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	24.6	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

* The results obtained are satisfactory as per standard requirements.



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R KARTHIK RECHAN
Authorized Signature
Quality Manager

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End of Report

Sub Division Engineer



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : Fine Aggregate
Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
Date of test : 28-11-22
Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	78	78	7.8	92.2	90-100	90-100	90-100	95-100
3	2.36 mm	65	143	14.3	85.7	60-95	75-100	85-100	95-100
4	1.18 mm	244	387	38.7	61.3	30-70	55-90	75-100	90-100
5	600 micron	215	602	60.2	39.8	15-34	35-59	60-79	80-100
6	300 micron	178	780	78.0	22.0	5-20	8-30	12-40	15-50
7	150 micron	141	921	92.1	7.9	0-10	0-10	0-10	0-15
8	Pan	79	1000	100.0	0.0	---	---	---	---

Result : The tested Sample Conforms to Grading Zone II

Page 1/2



Assistant Executive Engineer

Kodigehalli Sub Division

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4, 7TH MAIN MALLESWARAM, BANGALORE - 3

TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-11-28-01

Date: 30-11-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	—
2	Specific Gravity	2.59	—
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF STEEL

Lab ID : CP-2022-11-28-01 Date: 29-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : A-one Gold
Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.
Date of test: : 28-11-22

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm ²)	(N/mm ²)	(%)		
1	A-one Gold	Fe550	8	0.391	562	652	20.0%	Satisfactory	Satisfactory
2	A-one Gold	Fe550	10	0.616	568	672	20.0%	Satisfactory	Satisfactory
3	A-one Gold	Fe550	12	0.888	574	668	20.0%	Satisfactory	Satisfactory

* The results obtained are satisfactory as per standard requirements.



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Spectro Chemical Analysis, Physical, Non Destructive All Type of Metal Testing

Lab ID : CP-2022-11-28-01 Date: 29-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type / Grade : A-one Gold
Date of test : 28-11-22

CHEMICAL ANALYSIS

Sl. No.	Chemical Contents	8mm	10mm	12mm	Max. Limits as per IS:1786-2008, Gr. Fe 550
1	Carbon (C) %	0.142	0.133	0.146	0.300 Max
2	Phosphor (P) %	0.035	0.041	0.042	0.050 Max
3	Sulphur (S) %	0.037	0.046	0.040	0.055 Max
4	Sulphur & Phosphorus %	0.082	0.060	0.078	0.100 Max

Note : The above material confirms to ASI S S 304 with respect to elements analysed

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 10/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - Veeranna palya 6th A Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	151.59 X 151.43 X 151.43	22955	8.649	429.3	18.7	18.4
2	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	149.85 X 150.26 X 149.28	22517	8.768	408.3	18.1	
3	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	149.34 X 151.74 X 151.64	22661	8.445	415.3	18.3	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 31/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - Veeranna palya 6th A Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 31/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	149.16 X 149.99 X 149.42	22371	8.257	518.4	23.2	22.9
2	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	151.08 X 150.72 X 150.64	22771	8.813	502.4	22.1	
3	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	149.31 X 149.46 X 149.36	22316	8.326	523.2	23.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 10/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.44 X 150.27 X 150.90	22757	8.496	410.2	18.0	18.3
2	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.98 X 151.83 X 150.68	23076	8.673	427.3	18.5	
3	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.28 X 151.62 X 149.69	22937	8.806	424.2	18.5	

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Lab ID : CP-2022-12-05-01 Date: 31/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 31/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	151.24 X 149.82 X 149.89	22658	8.390	532.2	23.5	23.2
2	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	149.76 X 151.16 X 150.78	22638	8.189	505.6	22.3	
3	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	150.95 X 151.53 X 149.77	22873	8.891	542.1	23.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-06-01 Date: 12/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th B Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 12/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	149.44 X 151.29 X 149.83	22609	8.826	422.0	18.7	18.5
2	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	151.91 X 151.43 X 150.17	23004	8.237	421.4	18.3	
3	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	150.97 X 151.56 X 149.18	22881	8.700	421.7	18.4	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-06-01 Date: 02/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th B Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 02/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	151.49 X 151.57 X 151.24	22962	8.668	529.5	23.1	23.0
2	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	149.29 X 151.24 X 150.56	22579	8.435	510.2	22.6	
3	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	150.12 X 151.31 X 151.37	22716	8.999	531.7	23.4	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-07-01 Date: 13/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th A Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 13/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	150.18 X 150.59 X 149.27	22615	8.979	418.9	18.5	18.5
2	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	151.56 X 149.13 X 151.37	22603	8.810	408.6	18.1	
3	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	150.31 X 151.26 X 151.73	22736	8.625	431.0	19.0	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-07-01 Date: 03/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th A Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 03/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	150.08 X 151.11 X 149.24	22679	8.553	530.2	23.4	23.4
2	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	150.47 X 149.98 X 150.16	22566	8.106	512.9	22.7	
3	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	151.47 X 151.25 X 149.25	22910	8.563	549.3	24.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-12-01 Date: 17/12/2022

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 12-12-22

Customer ID : Drain Bottom raft Concrete - Veeranna palya 6th cross road

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 17/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	151.62 X 149.84 X 149.28	22718	8.231	412.0	18.1	18.2
2	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	149.57 X 149.17 X 150.41	22311	8.366	408.7	18.3	
3	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	150.05 X 151.58 X 150.31	22744	8.407	415.6	18.3	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-12-01 Date: 07/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 12-12-22
Customer ID : Drain Bottom raft Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 07/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	149.35 X 150.70 X 151.84	22508	8.819	533.9	23.7	23.0
2	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	150.26 X 151.27 X 149.56	22730	8.102	505.1	22.2	
3	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	149.88 X 150.26 X 149.49	22522	8.532	520.1	23.1	

* The results obtained are satisfactory as per standard requirements.



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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-13-01 Date: 19/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 13-12-22
Customer ID : Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 19/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	151.85 X	22789	8.729	414.9	18.2	18.5
					150.08 X					
					149.72					
2	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	151.54 X	22936	8.686	426.5	18.6	
					151.35 X					
					150.83					
3	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	149.38 X	22294	8.793	415.8	18.7	
					149.24 X					
					149.72					

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-13-01 Date: 09/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 13-12-22
Customer ID : Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 09/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	150.72 X 149.38 X 149.46	22515	8.966	533.7	23.7	23.3
2	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	149.24 X 150.41 X 149.62	22448	8.604	504.8	22.5	
3	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	149.09 X 151.87 X 149.85	22642	8.983	537.8	23.8	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 21/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	150.02 X 150.34 X 151.85	22554	8.741	411.0	18.2	18.1
2	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	149.91 X 149.31 X 150.35	22383	8.974	405.2	18.1	
3	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	149.52 X 151.34 X 151.43	22629	8.479	408.5	18.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 11/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 11/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	149.87 X 151.07 X 149.26	22640	8.228	533.8	23.6	23.2
2	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	150.53 X 151.15 X 150.78	22753	8.746	503.2	22.1	
3	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	149.61 X 151.13 X 151.76	22611	8.961	541.8	24.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 21/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	149.48 X 151.72 X 150.62	22678	8.143	409.5	18.1	18.4
2	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	149.82 X 149.79 X 150.81	22442	8.727	420.3	18.7	
3	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	150.93 X 149.60 X 149.47	22579	8.122	417.6	18.5	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 11/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 11/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	151.92 X 150.36 X 150.85	22842	8.262	547.1	24.0	23.5
2	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	149.77 X 149.53 X 151.27	22394	8.789	510.7	22.8	
3	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	149.15 X 150.91 X 149.37	22509	8.922	535.1	23.8	

* The results obtained are satisfactory as per standard requirements.

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****End of Report****



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Format No: CP/TF/01

TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type/Size : Solid concrete blocks size (400X150X200)mm
Reference to BIS codes : IS : 2185 (Part 1) : 2005(RA 2020) Concrete Masonry Specification
Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test : 16-12-22

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10 ⁶	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm ³)	Kg	Kg/m ³	Kg/m ³	
1	403	153	200	12332	23.264	1886.5	1904.5	Not less than 1800Kg/m ³
2	402	150	200	12060	22.582	1872.5		
3	401	150	203	12210	23.864	1954.4		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.25	4.89	4.25	Shall not be more than 10% by mass
2	33.57	32.14	4.28		
3	33.44	32.24	3.59		

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Lab ID : CP-2022-12-16-01

Date: 20-12-22

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	400	153	199	Length : $\pm 5\text{mm}$ Breadth : $\pm 3\text{mm}$ Height : $\pm 3\text{mm}$
2	400	151	199	
3	402	151	199	
4	401	150	200	
5	404	149	200	
6	402	150	203	
7	403	151	199	
8	403	151	201	
9	402	150	201	
10	401	150	202	
11	402	150	203	
12	399	152	199	
13	402	151	200	
14	403	149	200	
15	399	150	201	
16	402	152	201	
17	402	152	203	
18	403	152	202	
19	401	150	200	
20	399	150	202	
Average of 20	401	151	201	

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Lab ID : CP-2022-12-16-01

Date: 20-12-22

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm ²)	(KN)	N/mm ²	(N/mm ²)
1	400	150	60071	260.0	4.3	4.2
2	403	152	61453	256.0	4.2	
3	402	153	61428	260.5	4.2	
4	400	150	59943	257.4	4.3	
5	400	149	59675	253.0	4.2	
6	404	150	60519	257.6	4.3	
7	402	151	60622	255.4	4.2	
8	403	153	61538	259.6	4.2	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	Minimum average	Minimum Individual units.
C (5.0)	5.00 N/mm ²	4.00 N/mm ²
C (4.0)	4.00 N/mm ²	3.20 N/mm ²

* The Results Obtained are Satisfactory as per Standard Requirements



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Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type /Size : Precast Cover Slab - 100mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 16/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.42	100.48	1.116	4707	99.7	21.2	19.7	24.6
2	Cover Slab-2	77.63	100.52	1.122	4732	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.51	100.51	1.118	4718	101.5	21.5	20.0	25.0

The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type /Size : Precast Cover Slab - 230mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 16/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.36	230.15	2.115	4699	100.6	21.4	19.9	24.9
2	Cover Slab-2	77.55	230.45	2.131	4722	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.42	230.68	2.110	4707	99.0	21.0	19.6	24.4

The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	225	225	2.0	98.0	95-100
22.4	2585	2810	25.5	74.5	60-80
11.2	2245	5055	46.0	54.0	40-60
4.75	2189	7244	65.9	34.1	25-40
2.36	1525	8769	79.7	20.3	15-30
0.6	1225	9994	90.9	9.1	8-22
0.075	638	10632	96.7	3.3	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGREGATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	298.5	298.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	74.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	219.4	223.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.5
5	Aggregate impact value	(B/A)*100	26.3	24.8
6	Aggregate impact value (Mean of two tests)	Percentage	25.6	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	9.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	10.1%	
Combined Flakiness and Elongation Index for WMM	19.6%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : GKKV Layout
Date of test : 25-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	325	325	3.0	97.0	95-100
22.4	3488	3813	34.7	65.3	60-80
11.2	2055	5868	53.3	46.7	40-60
4.75	2014	7882	71.7	28.3	25-40
2.36	1011	8893	80.8	19.2	15-30
0.6	645	9538	86.7	13.3	8-22
0.075	1021	10559	96.0	4.0	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGREGATE IMPACT VALUE IS: 2386 Part IV

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : GKVK Layout
Date of test : 25-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.4	302.4
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	75.4	72.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	226.5	229.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.4
5	Aggregate impact value	(B/A)*100	24.9	23.8
6	Aggregate impact value (Mean of two tests)	Percentage	24.4	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : GKVK Layout
Date of test : 25-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Specified limits as per MORTH specification table 400-12
Flakiness Index	11.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	318	318	2.9	97.1	95-100
22.4	3745	4063	36.9	63.1	60-80
11.2	2152	6215	56.5	43.5	40-60
4.75	1865	8080	73.5	26.5	25-40
2.36	1145	9225	83.9	16.1	15-30
0.6	788	10013	91.0	9.0	8-22
0.075	758	10771	97.9	2.1	0-5

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF AGGREGATE IMPACT VALUE IS: 2386 Part IV

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.7	301.7
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	72.5	73.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	228.6	227.3
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.6
5	Aggregate impact value	(B/A)*100	24.0	24.5
6	Aggregate impact value (Mean of two tests)	Percentage	24.2	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.4%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.7%	
Combined Flakiness and Elongation Index for WMM	25.1%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	302	302	2.7	97.3	95-100
22.4	3644	3946	35.9	64.1	60-80
11.2	2047	5993	54.5	45.5	40-60
4.75	1985	7978	72.5	27.5	25-40
2.36	1165	9143	83.1	16.9	15-30
0.6	769	9912	90.1	9.9	8-22
0.075	702	10614	96.5	3.5	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	303.5	303.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	75.6
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.4
5	Aggregate impact value	(B/A)*100	25.9	24.9
6	Aggregate impact value (Mean of two tests)	Percentage	25.4	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	10.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	13.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.



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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID : CP-RW-2023-01-28-01 **Date:** 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of test : 28-01-23

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	61	Min 45
2	Softening Point, °C	50.8	Min. 47°C
3	Ductility, cm	100	Min. 47 cm
4	Flash point, °C	310	Min. 220°C
	Fire point, °C	322	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM-Plant (Dense Bituminous Macadam)
Date of test : 28-01-23
Weight of Sample : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	250	250	5.00	95.00	90-100
19	350	600	12.00	88.00	71-95
13.2	450	1050	21.00	79.00	56-80
4.75	1750	2800	56.00	44.00	38-54
2.36	400	3200	64.00	36.00	28-42
0.3	1350	4550	91.00	9.00	7-21
0.075	250	4800	96.00	4.00	2-8
PAN	200	5000	0.00	0	0

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM (Dense Bituminous Macadam)
Date of test : 28-01-23

Table 500-6 : Physical Requirements for Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	9.0	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	8.0		
Strength	Aggregate Impact Value	20.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.



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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM (Dense Bituminous Mecadam)
Date of test : 28-01-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	—

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

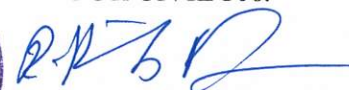
Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM(Dense Bitumnous Macadam)
Date of test : 28-01-23
Type of Binder : 60/70
% of Binder Used : 4.5%
Weight of Aggregate : 200.0 gm
Weight of Binder : 9 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2023-02-01-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 01-02-23
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC(Bitumenous Concrete)
Date of test : 01-02-23

Type of Binder : 60/70
% of Binder Used : 5.4%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.8 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.



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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-02-23

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.



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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-02-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	—

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-02-01-01 Date: 02-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Talacauvery layout 1st main Road
Date of test : 01-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.6	4.50
7	Average percentage	%	4.55	



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Lab ID : CP-RW-2023-02-01-01

Date: 02-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	14	14.4	3.01	97.0	90-100
19	24	38.4	8.02	92.0	71-95
13.2	120	158.4	33.07	66.9	56-80
4.75	96	254.4	53.11	46.9	38-54
2.36	80	334.4	69.81	30.2	28-42
0.3	62	396.8	82.84	17.2	7-21
0.075	53	449.6	93.86	6.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	15	14.8	3.09	96.9	90-100
19	24	38.8	8.09	91.9	71-95
13.2	120	158.8	33.12	66.9	56-80
4.75	96	254.8	53.14	46.9	38-54
2.36	78	332.8	69.41	30.6	28-42
0.3	62	395.2	82.42	17.6	7-21
0.075	53	448	93.43	6.6	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-02-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 02-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Muniswamy gowda layout- 1st Main Road
Date of test : 02-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.50
7	Average percentage	%	4.50	



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Assistant Executive Engineer
Kodigehalli Sub Division



Lab ID : CP-RW-2023-02-02-01

Date: 03-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	32	32	6.67	93.3	90-100
19	46	78	16.27	83.7	71-95
13.2	116	194	40.46	59.5	56-80
4.75	76	270	56.31	43.7	38-54
2.36	38	308	64.23	35.8	28-42
0.3	76	384	80.08	19.9	7-21
0.075	59	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	26	26	5.42	94.6	90-100
19	32	58	12.10	87.9	71-95
13.2	145	203	42.34	57.7	56-80
4.75	78	281	58.60	41.4	38-54
2.36	32	313	65.28	34.7	28-42
0.3	69	382	79.67	20.3	7-21
0.075	71	453	94.47	5.5	2-8

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-02-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 02-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : GKV layout - Main Road
Date of test : 02-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.70	4.50
7	Average percentage	%	4.60	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-02-01

Date: 03-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	33	33	6.90	93.1	90-100
19	45	78	16.30	83.7	71-95
13.2	112	190	39.71	60.3	56-80
4.75	79	269	56.22	43.8	38-54
2.36	40	309	64.58	35.4	28-42
0.3	73	382	79.83	20.2	7-21
0.075	63	445	93.00	7.0	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	28	28	5.84	94.2	90-100
19	34	62	12.93	87.1	71-95
13.2	148	210	43.80	56.2	56-80
4.75	80	290	60.48	39.5	38-54
2.36	35	325	67.78	32.2	28-42
0.3	70	395	82.38	17.6	7-21
0.075	66	461	96.14	3.9	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-03-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 03-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Veerannapalya - 6th A & 6th Cross Road
Date of test : 03-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.60
7	Average percentage	%	4.55	



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Lab ID : CP-RW-2023-02-03-01

Date: 04-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	36	36	7.51	92.5	90-100
19	40	76	15.85	84.2	71-95
13.2	108	184	38.37	61.6	56-80
4.75	77	261	54.43	45.6	38-54
2.36	42	303	63.19	36.8	28-42
0.3	80	383	79.87	20.1	7-21
0.075	60	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	30	30	6.26	93.7	90-100
19	36	66	13.78	86.2	71-95
13.2	130	196	40.92	59.1	56-80
4.75	82	278	58.04	42.0	38-54
2.36	37	315	65.76	34.2	28-42
0.3	73	388	81.00	19.0	7-21
0.075	63	451	94.15	5.8	2-8

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-06-01 Date: 07-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Talacauvery layout 1st main Road
Date of test : 06-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.50
7	Average percentage	%	5.55	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-06-01

Date: 07-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	32	32	6.8	93.2	90-100
9.5	45	77	16.2	83.8	70-88
4.75	123	200	42.2	57.8	53-71
2.36	62	262	55.3	44.7	42-58
1.18	38	300	63.3	36.7	34-48
0.6	22	322	67.9	32.1	26-38
0.3	48	370	78.1	21.9	18-28
0.15	38	408	86.1	13.9	12-20
0.075	28	436	92.0	8.0	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	36	36	7.6	92.4	90-100
9.5	49	85	17.9	82.1	70-88
4.75	96	181	38.1	61.9	53-71
2.36	69	250	52.7	47.3	42-58
1.18	53	303	63.9	36.1	34-48
0.6	25	328	69.1	30.9	26-38
0.3	49	377	79.5	20.5	18-28
0.15	20	397	83.7	16.3	12-20
0.075	40	437	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-06-01 **Date:** 07-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-02-23
Type of Mix : Tack coat
Date of test : 06-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-07-01 Date: 08-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd A Cross Road- Talacauvery Layout
Date of test : 07-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-07-01

Date: 08-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

:

475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	52.8	47.2	42-58
1.18	39	290	61.1	38.9	34-48
0.6	15	305	64.2	35.8	26-38
0.3	46	351	73.9	26.1	18-28
0.15	45	396	83.4	16.6	12-20
0.075	39	435	91.6	8.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

:

474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.1	43.9	42-58
1.18	29	295	62.2	37.8	34-48
0.6	11	306	64.5	35.5	26-38
0.3	46	352	74.2	25.8	18-28
0.15	45	397	83.7	16.3	12-20
0.075	35	432	91.0	9.0	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-07-01 **Date:** 08-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-02-23
Type of Mix : Tack coat
Date of test : 07-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.244
7	Average	Kg/sq.m	0.250	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd Cross Road - Talacauvery Layout
Date of test : 09-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-02-09-01

Date: 10-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	53.0	47.0	42-58
1.18	39	290	61.2	38.8	34-48
0.6	15	305	64.3	35.7	26-38
0.3	46	351	74.1	25.9	18-28
0.15	45	396	83.5	16.5	12-20
0.075	39	435	91.8	8.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.0	44.0	42-58
1.18	29	295	62.1	37.9	34-48
0.6	11	306	64.4	35.6	26-38
0.3	46	352	74.1	25.9	18-28
0.15	45	397	83.6	16.4	12-20
0.075	35	432	90.9	9.1	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : Tack coat
Date of test : 09-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.801	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.021	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.233	0.222
7	Average	Kg/sq.m	0.228	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-14-01 Date: 15-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st A Cross Road - Talacauvery Layout
Date of test : 14-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	473.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.50	5.70
7	Average percentage	%	5.60	



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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



Lab ID : CP-RW-2023-02-14-01

Date: 15-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	21	21	4.4	95.6	90-100
9.5	47	68	14.3	85.7	70-88
4.75	139	207	43.6	56.4	53-71
2.36	41	248	52.3	47.7	42-58
1.18	34	282	59.4	40.6	34-48
0.6	20	302	63.6	36.4	26-38
0.3	41	343	72.3	27.7	18-28
0.15	40	383	80.7	19.3	12-20
0.075	53	436	91.9	8.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	10	10	2.1	97.9	90-100
9.5	69	79	16.7	83.3	70-88
4.75	116	195	41.2	58.8	53-71
2.36	60	255	53.9	46.1	42-58
1.18	35	290	61.2	38.8	34-48
0.6	16	306	64.6	35.4	26-38
0.3	42	348	73.5	26.5	18-28
0.15	43	391	82.6	17.4	12-20
0.075	45	436	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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BBMP, Bangalore

**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-14-01 **Date:** 15-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : Tack coat
Date of test : 14-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.222
7	Average	Kg/sq.m	0.244	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

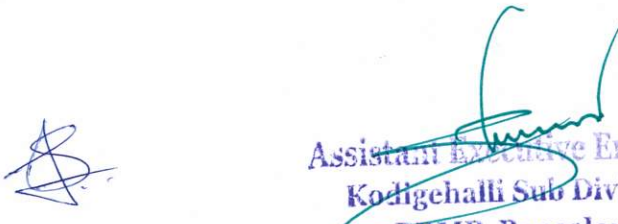
Lab ID : CP-RW-2023-03-18-01 Date: 20-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st main Road Talacauvery layout
Date of test : 18-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-03-18-01

Date: 20-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	26	26	5.5	94.5	90-100
9.5	57	83	17.5	82.5	70-88
4.75	125	208	43.9	56.1	53-71
2.36	46	254	53.6	46.4	42-58
1.18	43	297	62.7	37.3	34-48
0.6	33	330	69.6	30.4	26-38
0.3	40	370	78.1	21.9	18-28
0.15	31	401	84.6	15.4	12-20
0.075	38	439	92.6	7.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	30	30	6.3	93.7	90-100
9.5	70	100	21.1	78.9	70-88
4.75	116	216	45.5	54.5	53-71
2.36	50	266	56.0	44.0	42-58
1.18	39	305	64.2	35.8	34-48
0.6	32	337	70.9	29.1	26-38
0.3	40	377	79.4	20.6	18-28
0.15	33	410	86.3	13.7	12-20
0.075	34	444	93.5	6.5	4-10

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-18-01 Date: 20-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-03-23
Type of Mix : Tack coat
Date of test : 18-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.244
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-20-01 Date: 21-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st main muniswamy gowda layout
Date of test : 20-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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KARTHIK RECHAN
Authorized Signatory
Quality Manager

Page 1/2

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



Lab ID : CP-RW-2023-03-20-01

Date: 21-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

:

475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	23	23	4.8	95.2	90-100
9.5	59	82	17.3	82.7	70-88
4.75	121	203	42.7	57.3	53-71
2.36	50	253	53.3	46.7	42-58
1.18	49	302	63.6	36.4	34-48
0.6	34	336	70.7	29.3	26-38
0.3	44	380	80.0	20.0	18-28
0.15	29	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

:

474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	74	107	22.6	77.4	70-88
4.75	110	217	45.7	54.3	53-71
2.36	50	267	56.3	43.7	42-58
1.18	40	307	64.7	35.3	34-48
0.6	38	345	72.7	27.3	26-38
0.3	37	382	80.5	19.5	18-28
0.15	30	412	86.8	13.2	12-20
0.075	30	442	93.2	6.8	4-10

* The results obtained are satisfactory as per standard requirements.



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Quality Manager

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End of Report

Assistant Executive Engineer
Kodigehalli Sub Division

BMP, Bangalore



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-20-01 **Date:** 21-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-03-23
Type of Mix : Tack coat
Date of test : 20-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.244
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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R. KARTHIK RECHAN

Authorized Signatory
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Page 1/1

End of Report

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Kodigehalli Sub Division

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 30-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 3rd cross chiranjeevi layout
Date of test : 29-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	473.5	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.70	5.60
7	Average percentage	%	5.65	



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Page 1/2

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-03-29-01

Date: 30-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	55	83	17.5	82.5	70-88
4.75	124	207	43.7	56.3	53-71
2.36	53	260	54.9	45.1	42-58
1.18	41	301	63.6	36.4	34-48
0.6	37	338	71.4	28.6	26-38
0.3	35	373	78.8	21.2	18-28
0.15	30	403	85.1	14.9	12-20
0.075	46	449	94.8	5.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	73	106	22.4	77.6	70-88
4.75	105	211	44.5	55.5	53-71
2.36	46	257	54.2	45.8	42-58
1.18	43	300	63.3	36.7	34-48
0.6	41	341	71.9	28.1	26-38
0.3	39	380	80.2	19.8	18-28
0.15	24	404	85.2	14.8	12-20
0.075	34	438	92.4	7.6	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-29-01 Date: 30-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-03-23
Type of Mix : Tack coat
Date of test : 29-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.802	0.769
5	Weight of tack Coat (d=c-b)	Kg	0.022	0.021
6	Rate of spread of tack coat	Kg/sq.m	0.244	0.233
7	Average	Kg/sq.m	0.239	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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R. Karthik

R KARTHIK RECHAN

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End of Report

[Signature]

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Assistant Executive Engineer
Kottigehalli Sub Division
BBMP, Bangalore



**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 22-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-11-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 9th A Cross Road- Sahakar Nagara
Date of test : 20-11-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.60
7	Average percentage	%	5.50	



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KARTHIK RECHAN
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Quality Manager

Page 1/2

Assistant Executive Engineer
Kodigehalli Sub Division
Bangalore



Lab ID : CP-RW-2023-03-29-01

Date: 22-11-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

: 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	52	80	16.8	83.2	70-88
4.75	124	204	42.9	57.1	53-71
2.36	53	257	54.1	45.9	42-58
1.18	43	300	63.2	36.8	34-48
0.6	38	338	71.2	28.8	26-38
0.3	35	373	78.5	21.5	18-28
0.15	36	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

: 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	72	105	22.2	77.8	70-88
4.75	105	210	44.3	55.7	53-71
2.36	40	250	52.7	47.3	42-58
1.18	43	293	61.8	38.2	34-48
0.6	46	339	71.5	28.5	26-38
0.3	38	377	79.5	20.5	18-28
0.15	27	404	85.2	14.8	12-20
0.075	42	446	94.1	5.9	4-10

* The results obtained are satisfactory as per standard requirements.



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Quality Manager

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End of Report

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-11-20-01 Date: 21-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-11-23
Type of Mix : Tack coat
Date of test : 20-11-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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R. KARTHIK RECHAN

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Quality Manager

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End of Report

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-04-06-01 Date: 07-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-04-23
Type of Mix : Tack coat
Date of test : 06-04-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



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Quality Manager

**NAME OF THE WORK: PACKAGE NO.03
(CONSISTS OF 5 WORKS)**

Second and Part Bill

Quality Control Reports

BOOK NO – 02

VOLUME-I WARD-07



QC ABSTRACT

NAME OF WORK: Package No-03 (Consists of 5 works)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
Materials						
1	Cement	Fineness by dry sieving	One Test		1	1
		Fineness by Air permeability method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
2	Coarse aggregate(40 mm down size)	Compressive Strength	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
3	Coarse aggregate(20 mm down size)	Water Absorption	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
4	Fine aggregate	Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Material finer than 75 micron	One Test		1	1
		ReBend test	One Test		1	1
5	Steel	Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
		Bend test	One Test		1	1
		Core Compressive Strength	One Test		1	1
6	Precast (100mm)	Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
		Core Compressive Strength	One Test		1	1
7	Precast (230mm)	Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
		Core Compressive Strength	One Test		1	1
8	RCC(M20)	Compressive Strength(7days and 28days)	8 sets	167.45	16	16



9	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
10	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
11	BC	Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
12	BITUMEN	Fire Point	One Test		1	1
13	TACK COAT	Rate of spread	One Test		1	1



TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988
IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability
IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11, (RA 2019) DETERMINATION OF DENSITY , Clause 6

Date of test : 28-11-22

Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	1.75	—
2	Finess by Air permeablity method (m ² /kg,Min)	281.4	225m ² /kg, Min
3	Density (gm/cc)	3.14	—
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	175 minutes	Not less than 30 minutes
6	Final Setting time	280 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.



FOR CIVIL Pro.

R. Karthik

R KARTHIK RECHAN

Authorized Signatory

Quality Manager

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****End of Report****

[Signature]
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-11-28-01 Date: 26-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988 , IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard
Cement Paste, Clause 5
IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6
Date of test : 28-11-22
Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	3 Days	29.0N/mm ²	Not less than 27 N/mm ²
2	7 Days	38.5N/mm ²	Not less than 37 N/mm ²
3	28 Days	57.5N/mm ²	Not less than 53 N/mm ²

* The results obtained are satisfactory as per standard requirements.



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****End of Report****


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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01 Date: 01-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : 40mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 28-11-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	242	242	1.6	98.4	90-100
3	20 mm	5437	5679	37.9	62.1	30-70
4	10 mm	4339	10018	66.8	33.2	10-35
5	4.75 mm	4649	14667	97.8	2.2	0-5
6	Pan	333	15000	100.0	0	---



Assistant Executive Engineer

Kodigehalli Sub Division

BEMP, Bangalore



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01

Date: 01-12-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	10.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.6	
3	Specific Gravity	2.62	—
4	Bulk Density(Loose) (Kg/l)	1.47	—
5	Bulk Density(Compacted) (Kg/l)	1.51	—
6	Water Absorption(%)	0.22	—

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type/ Size : 20mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 28-11-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	240	240	4.8	95.2	90-100
3	10 mm	2567	2807	56.1	43.9	25-55
4	4.75 mm	2030	4837	96.7	3.3	0-10
5	Pan	163	5000	100	0	—



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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01

Date: 30-11-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.3	
3	Specific Gravity	2.65	—
4	Bulk Density(Loose) (Kg/l)	1.5	—
5	Bulk Density(Compacted) (Kg/l)	1.52	—
6	Water Absorption(%)	0.23	—
7	Aggregate crushing Value(%)	22.7	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	24.6	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : Fine Aggregate
Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
Date of test : 28-11-22
Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	78	78	7.8	92.2	90-100	90-100	90-100	95-100
3	2.36 mm	65	143	14.3	85.7	60-95	75-100	85-100	95-100
4	1.18 mm	244	387	38.7	61.3	30-70	55-90	75-100	90-100
5	600 micron	215	602	60.2	39.8	15-34	35-59	60-79	80-100
6	300 micron	178	780	78.0	22.0	5-20	8-30	12-40	15-50
7	150 micron	141	921	92.1	7.9	0-10	0-10	0-10	0-15
8	Pan	79	1000	100.0	0.0	---	---	---	---

Result : The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-11-28-01

Date: 30-11-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	—
2	Specific Gravity	2.59	—
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF STEEL

Lab ID : CP-2022-11-28-01 Date: 29-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : A-one Gold
Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.
Date of test: : 28-11-22

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm ²)	(N/mm ²)	(%)		
1	A-one Gold	Fe550	8	0.391	562	652	20.0%	Satisfactory	Satisfactory
2	A-one Gold	Fe550	10	0.616	568	672	20.0%	Satisfactory	Satisfactory
3	A-one Gold	Fe550	12	0.888	574	668	20.0%	Satisfactory	Satisfactory

* The results obtained are satisfactory as per standard requirements.



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Spectro Chemical Analysis, Physical, Non Destructive All Type of Metal Testing

Lab ID : CP-2022-11-28-01 Date: 29-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type / Grade : A-one Gold
Date of test : 28-11-22

CHEMICAL ANALYSIS

Sl. No.	Chemical Contents	8mm	10mm	12mm	Max. Limits as per IS:1786-2008, Gr. Fe 550
1	Carbon (C) %	0.142	0.133	0.146	0.300 Max
2	Phosphor (P) %	0.035	0.041	0.042	0.050 Max
3	Sulphur (S) %	0.037	0.046	0.040	0.055 Max
4	Sulphur & Phosphorus %	0.082	0.060	0.078	0.100 Max

Note : The above material confirms to ASI S S 304 with respect to elements analysed

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 10/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - Veeranna palya 6th A Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	151.59 X 151.43 X 151.43	22955	8.649	429.3	18.7	18.4
2	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	149.85 X 150.26 X 149.28	22517	8.768	408.3	18.1	
3	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	149.34 X 151.74 X 151.64	22661	8.445	415.3	18.3	

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Lab ID : CP-2022-12-05-01 Date: 31/12/2022

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 05-12-22

Customer ID : Drain Bottom Raft Concrete - Veeranna palya 6th A Cross

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 31/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	149.16 X 149.99 X 149.42	22371	8.257	518.4	23.2	22.9
2	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	151.08 X 150.72 X 150.64	22771	8.813	502.4	22.1	
3	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	149.31 X 149.46 X 149.36	22316	8.326	523.2	23.4	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 10/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.44 X 150.27 X 150.90	22757	8.496	410.2	18.0	18.3
2	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.98 X 151.83 X 150.68	23076	8.673	427.3	18.5	
3	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.28 X 151.62 X 149.69	22937	8.806	424.2	18.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 31/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 31/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	151.24 X 149.82 X 149.89	22658	8.390	532.2	23.5	23.2
2	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	149.76 X 151.16 X 150.78	22638	8.189	505.6	22.3	
3	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	150.95 X 151.53 X 149.77	22873	8.891	542.1	23.7	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-06-01 Date: 12/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th B Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 12/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	149.44 X 151.29 X 149.83	22609	8.826	422.0	18.7	18.5
2	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	151.91 X 151.43 X 150.17	23004	8.237	421.4	18.3	
3	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	150.97 X 151.56 X 149.18	22881	8.700	421.7	18.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-06-01 Date: 02/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th B Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 02/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	151.49 X 151.57 X 151.24	22962	8.668	529.5	23.1	23.0
2	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	149.29 X 151.24 X 150.56	22579	8.435	510.2	22.6	
3	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	150.12 X 151.31 X 151.37	22716	8.999	531.7	23.4	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-07-01 Date: 13/12/2022

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 07-12-22

Customer ID : Drain Side Wall Concrete - Veeranna palya 6th A Cross Road

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 13/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	150.18 X 150.59 X 149.27	22615	8.979	418.9	18.5	18.5
2	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	151.56 X 149.13 X 151.37	22603	8.810	408.6	18.1	
3	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	150.31 X 151.26 X 151.73	22736	8.625	431.0	19.0	

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-07-01 Date: 03/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th A Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 03/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	150.08 X 151.11 X 149.24	22679	8.553	530.2	23.4	23.4
2	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	150.47 X 149.98 X 150.16	22566	8.106	512.9	22.7	
3	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	151.47 X 151.25 X 149.25	22910	8.563	549.3	24.0	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-12-01 Date: 17/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 12-12-22
Customer ID : Drain Bottom raft Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 17/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	151.62 X 149.84 X 149.28	22718	8.231	412.0	18.1	18.2
2	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	149.57 X 149.17 X 150.41	22311	8.366	408.7	18.3	
3	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	150.05 X 151.58 X 150.31	22744	8.407	415.6	18.3	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-12-01 Date: 07/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 12-12-22
Customer ID : Drain Bottom raft Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 07/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	149.35 X 150.70 X 151.84	22508	8.819	533.9	23.7	23.0
2	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	150.26 X 151.27 X 149.56	22730	8.102	505.1	22.2	
3	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	149.88 X 150.26 X 149.49	22522	8.532	520.1	23.1	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-13-01 Date: 19/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 13-12-22
Customer ID : Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 19/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	151.85 X	22789	8.729	414.9	18.2	18.5
					150.08 X					
					149.72					
2	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	151.54 X	22936	8.686	426.5	18.6	
					151.35 X					
					150.83					
3	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	149.38 X	22294	8.793	415.8	18.7	
					149.24 X					
					149.72					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-13-01 Date: 09/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 13-12-22
Customer ID : Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 09/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	150.72 X 149.38 X 149.46	22515	8.966	533.7	23.7	23.3
2	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	149.24 X 150.41 X 149.62	22448	8.604	504.8	22.5	
3	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	149.09 X 151.87 X 149.85	22642	8.983	537.8	23.8	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 21/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	150.02 X 150.34 X 151.85	22554	8.741	411.0	18.2	18.1
2	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	149.91 X 149.31 X 150.35	22383	8.974	405.2	18.1	
3	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	149.52 X 151.34 X 151.43	22629	8.479	408.5	18.1	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 11/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 11/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	149.87 X 151.07 X 149.26	22640	8.228	533.8	23.6	23.2
2	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	150.53 X 151.15 X 150.78	22753	8.746	503.2	22.1	
3	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	149.61 X 151.13 X 151.76	22611	8.961	541.8	24.0	

* The results obtained are satisfactory as per standard requirements.



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Lab ID : CP-2022-12-15-01 Date: 21/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	149.48 X 151.72 X 150.62	22678	8.143	409.5	18.1	18.4
2	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	149.82 X 149.79 X 150.81	22442	8.727	420.3	18.7	
3	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	150.93 X 149.60 X 149.47	22579	8.122	417.6	18.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 11/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 11/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	151.92 X 150.36 X 150.85	22842	8.262	547.1	24.0	23.5
2	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	149.77 X 149.53 X 151.27	22394	8.789	510.7	22.8	
3	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	149.15 X 150.91 X 149.37	22509	8.922	535.1	23.8	

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Format No: CP/TF/01

TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type/Size : Solid concrete blocks size (400X150X200)mm
Reference to BIS codes : IS : 2185 (Part 1) : 2005(RA 2020) Concrete Masonry Specification
Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test : 16-12-22

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10 ⁶	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm ³)	Kg	Kg/m ³	Kg/m ³	
1	403	153	200	12332	23.264	1886.5	1904.5	Not less than 1800Kg/m ³
2	402	150	200	12060	22.582	1872.5		
3	401	150	203	12210	23.864	1954.4		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.25	4.89	4.25	Shall not be more than 10% by mass
2	33.57	32.14	4.28		
3	33.44	32.24	3.59		

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Lab ID : CP-2022-12-16-01

Date: 20-12-22

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	400	153	199	Length : $\pm 5\text{mm}$ Breadth : $\pm 3\text{mm}$ Height : $\pm 3\text{mm}$
2	400	151	199	
3	402	151	199	
4	401	150	200	
5	404	149	200	
6	402	150	203	
7	403	151	199	
8	403	151	201	
9	402	150	201	
10	401	150	202	
11	402	150	203	
12	399	152	199	
13	402	151	200	
14	403	149	200	
15	399	150	201	
16	402	152	201	
17	402	152	203	
18	403	152	202	
19	401	150	200	
20	399	150	202	
Average of 20	401	151	201	

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Lab ID : CP-2022-12-16-01

Date: 20-12-22

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm ²)	(KN)	N/mm ²	(N/mm ²)
1	400	150	60071	260.0	4.3	4.2
2	403	152	61453	256.0	4.2	
3	402	153	61428	260.5	4.2	
4	400	150	59943	257.4	4.3	
5	400	149	59675	253.0	4.2	
6	404	150	60519	257.6	4.3	
7	402	151	60622	255.4	4.2	
8	403	153	61538	259.6	4.2	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	Minimum average	Minimum Individual units.
C (5.0)	5.00 N/mm ²	4.00 N/mm ²
C (4.0)	4.00 N/mm ²	3.20 N/mm ²

* The Results Obtained are Satisfactory as per Standard Requirements



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type /Size : Precast Cover Slab - 100mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 16/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.42	100.48	1.116	4707	99.7	21.2	19.7	24.6
2	Cover Slab-2	77.63	100.52	1.122	4732	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.51	100.51	1.118	4718	101.5	21.5	20.0	25.0

The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type /Size : Precast Cover Slab - 230mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 16/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.36	230.15	2.115	4699	100.6	21.4	19.9	24.9
2	Cover Slab-2	77.55	230.45	2.131	4722	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.42	230.68	2.110	4707	99.0	21.0	19.6	24.4

The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	225	225	2.0	98.0	95-100
22.4	2585	2810	25.5	74.5	60-80
11.2	2245	5055	46.0	54.0	40-60
4.75	2189	7244	65.9	34.1	25-40
2.36	1525	8769	79.7	20.3	15-30
0.6	1225	9994	90.9	9.1	8-22
0.075	638	10632	96.7	3.3	0-5

* The results obtained are satisfactory as per standard requirements.

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End of Report



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TEST REPORT OF AGGREGATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	298.5	298.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	74.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	219.4	223.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.5
5	Aggregate impact value	(B/A)*100	26.3	24.8
6	Aggregate impact value (Mean of two tests)	Percentage	25.6	

* The results obtained are satisfactory as per standard requirements.

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**DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF
COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))**

Lab ID : CP-RW-2023-01-25-01 **Date:** 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	9.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	10.1%	
Combined Flakiness and Elongation Index for WMM	19.6%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : GKKV Layout
Date of test : 25-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	325	325	3.0	97.0	95-100
22.4	3488	3813	34.7	65.3	60-80
11.2	2055	5868	53.3	46.7	40-60
4.75	2014	7882	71.7	28.3	25-40
2.36	1011	8893	80.8	19.2	15-30
0.6	645	9538	86.7	13.3	8-22
0.075	1021	10559	96.0	4.0	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE IS: 2386 Part IV

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : GKVK Layout
Date of test : 25-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.4	302.4
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	75.4	72.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	226.5	229.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.4
5	Aggregate impact value	(B/A)*100	24.9	23.8
6	Aggregate impact value (Mean of two tests)	Percentage	24.4	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : GKVK Layout
Date of test : 25-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Specified limits as per MORTH specification table 400-12
Flakiness Index	11.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	318	318	2.9	97.1	95-100
22.4	3745	4063	36.9	63.1	60-80
11.2	2152	6215	56.5	43.5	40-60
4.75	1865	8080	73.5	26.5	25-40
2.36	1145	9225	83.9	16.1	15-30
0.6	788	10013	91.0	9.0	8-22
0.075	758	10771	97.9	2.1	0-5

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGREGATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2023-01-28-01 **Date:** 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.7	301.7
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	72.5	73.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	228.6	227.3
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.6
5	Aggregate impact value	(B/A)*100	24.0	24.5
6	Aggregate impact value (Mean of two tests)	Percentage	24.2	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.4%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.7%	
Combined Flakiness and Elongation Index for WMM	25.1%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	302	302	2.7	97.3	95-100
22.4	3644	3946	35.9	64.1	60-80
11.2	2047	5993	54.5	45.5	40-60
4.75	1985	7978	72.5	27.5	25-40
2.36	1165	9143	83.1	16.9	15-30
0.6	769	9912	90.1	9.9	8-22
0.075	702	10614	96.5	3.5	0-5

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	303.5	303.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	75.6
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.4
5	Aggregate impact value	(B/A)*100	25.9	24.9
6	Aggregate impact value (Mean of two tests)	Percentage	25.4	

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	10.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	13.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.



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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID : CP-RW-2023-01-28-01 **Date:** 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of test : 28-01-23

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	61	Min 45
2	Softening Point, °C	50.8	Min. 47°C
3	Ductility, cm	100	Min. 47 cm
4	Flash point, °C	310	Min. 220°C
	Fire point, °C	322	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM-Plant (Dense Bituminous Macadam)
Date of test : 28-01-23
Weight of Sample : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	250	250	5.00	95.00	90-100
19	350	600	12.00	88.00	71-95
13.2	450	1050	21.00	79.00	56-80
4.75	1750	2800	56.00	44.00	38-54
2.36	400	3200	64.00	36.00	28-42
0.3	1350	4550	91.00	9.00	7-21
0.075	250	4800	96.00	4.00	2-8
PAN	200	5000	0.00	0	0

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM (Dense Bituminous Macadam)
Date of test : 28-01-23

Table 500-6 : Physical Requirements for Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	9.0	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	8.0		
Strength	Aggregate Impact Value	20.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.



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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM (Dense Bituminous Mecadam)
Date of test : 28-01-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	—

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM(Dense Bitumnous Macadam)
Date of test : 28-01-23
Type of Binder : 60/70
% of Binder Used : 4.5%
Weight of Aggregate : 200.0 gm
Weight of Binder : 9 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2023-02-01-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 01-02-23
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC(Bitumenous Concrete)
Date of test : 01-02-23

Type of Binder : 60/70
% of Binder Used : 5.4%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.8 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-02-23

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-02-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	—

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-01-01 Date: 02-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya pura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Talacauvery layout 1st main Road
Date of test : 01-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.6	4.50
7	Average percentage	%	4.55	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-01-01

Date: 02-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	14	14.4	3.01	97.0	90-100
19	24	38.4	8.02	92.0	71-95
13.2	120	158.4	33.07	66.9	56-80
4.75	96	254.4	53.11	46.9	38-54
2.36	80	334.4	69.81	30.2	28-42
0.3	62	396.8	82.84	17.2	7-21
0.075	53	449.6	93.86	6.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	15	14.8	3.09	96.9	90-100
19	24	38.8	8.09	91.9	71-95
13.2	120	158.8	33.12	66.9	56-80
4.75	96	254.8	53.14	46.9	38-54
2.36	78	332.8	69.41	30.6	28-42
0.3	62	395.2	82.42	17.6	7-21
0.075	53	448	93.43	6.6	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-02-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 02-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Muniswamy gowda layout- 1st Main Road
Date of test : 02-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.50
7	Average percentage	%	4.50	



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Lab ID : CP-RW-2023-02-02-01

Date: 03-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	32	32	6.67	93.3	90-100
19	46	78	16.27	83.7	71-95
13.2	116	194	40.46	59.5	56-80
4.75	76	270	56.31	43.7	38-54
2.36	38	308	64.23	35.8	28-42
0.3	76	384	80.08	19.9	7-21
0.075	59	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	26	26	5.42	94.6	90-100
19	32	58	12.10	87.9	71-95
13.2	145	203	42.34	57.7	56-80
4.75	78	281	58.60	41.4	38-54
2.36	32	313	65.28	34.7	28-42
0.3	69	382	79.67	20.3	7-21
0.075	71	453	94.47	5.5	2-8

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-02-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 02-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : GKV layout - Main Road
Date of test : 02-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.70	4.50
7	Average percentage	%	4.60	



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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-02-01

Date: 03-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	33	33	6.90	93.1	90-100
19	45	78	16.30	83.7	71-95
13.2	112	190	39.71	60.3	56-80
4.75	79	269	56.22	43.8	38-54
2.36	40	309	64.58	35.4	28-42
0.3	73	382	79.83	20.2	7-21
0.075	63	445	93.00	7.0	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	28	28	5.84	94.2	90-100
19	34	62	12.93	87.1	71-95
13.2	148	210	43.80	56.2	56-80
4.75	80	290	60.48	39.5	38-54
2.36	35	325	67.78	32.2	28-42
0.3	70	395	82.38	17.6	7-21
0.075	66	461	96.14	3.9	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-03-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 03-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Veerannapalya - 6th A & 6th Cross Road
Date of test : 03-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.60
7	Average percentage	%	4.55	



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Lab ID : CP-RW-2023-02-03-01

Date: 04-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	36	36	7.51	92.5	90-100
19	40	76	15.85	84.2	71-95
13.2	108	184	38.37	61.6	56-80
4.75	77	261	54.43	45.6	38-54
2.36	42	303	63.19	36.8	28-42
0.3	80	383	79.87	20.1	7-21
0.075	60	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	30	30	6.26	93.7	90-100
19	36	66	13.78	86.2	71-95
13.2	130	196	40.92	59.1	56-80
4.75	82	278	58.04	42.0	38-54
2.36	37	315	65.76	34.2	28-42
0.3	73	388	81.00	19.0	7-21
0.075	63	451	94.15	5.8	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-06-01 Date: 07-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Talacauvery layout 1st main Road
Date of test : 06-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.50
7	Average percentage	%	5.55	



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Executive Engineer
Sub Division
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Lab ID : CP-RW-2023-02-06-01

Date: 07-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	32	32	6.8	93.2	90-100
9.5	45	77	16.2	83.8	70-88
4.75	123	200	42.2	57.8	53-71
2.36	62	262	55.3	44.7	42-58
1.18	38	300	63.3	36.7	34-48
0.6	22	322	67.9	32.1	26-38
0.3	48	370	78.1	21.9	18-28
0.15	38	408	86.1	13.9	12-20
0.075	28	436	92.0	8.0	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	36	36	7.6	92.4	90-100
9.5	49	85	17.9	82.1	70-88
4.75	96	181	38.1	61.9	53-71
2.36	69	250	52.7	47.3	42-58
1.18	53	303	63.9	36.1	34-48
0.6	25	328	69.1	30.9	26-38
0.3	49	377	79.5	20.5	18-28
0.15	20	397	83.7	16.3	12-20
0.075	40	437	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-02-06-01 Date: 07-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-02-23
Type of Mix : Tack coat
Date of test : 06-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-07-01 Date: 08-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd A Cross Road- Talacauvery Layout
Date of test : 07-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-07-01

Date: 08-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

: 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	52.8	47.2	42-58
1.18	39	290	61.1	38.9	34-48
0.6	15	305	64.2	35.8	26-38
0.3	46	351	73.9	26.1	18-28
0.15	45	396	83.4	16.6	12-20
0.075	39	435	91.6	8.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

: 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.1	43.9	42-58
1.18	29	295	62.2	37.8	34-48
0.6	11	306	64.5	35.5	26-38
0.3	46	352	74.2	25.8	18-28
0.15	45	397	83.7	16.3	12-20
0.075	35	432	91.0	9.0	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-07-01 **Date:** 08-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-02-23
Type of Mix : Tack coat
Date of test : 07-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.244
7	Average	Kg/sq.m	0.250	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd Cross Road - Talacauvery Layout
Date of test : 09-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-02-09-01

Date: 10-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	53.0	47.0	42-58
1.18	39	290	61.2	38.8	34-48
0.6	15	305	64.3	35.7	26-38
0.3	46	351	74.1	25.9	18-28
0.15	45	396	83.5	16.5	12-20
0.075	39	435	91.8	8.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.0	44.0	42-58
1.18	29	295	62.1	37.9	34-48
0.6	11	306	64.4	35.6	26-38
0.3	46	352	74.1	25.9	18-28
0.15	45	397	83.6	16.4	12-20
0.075	35	432	90.9	9.1	4-10

* The results obtained are satisfactory as per standard requirements.



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End of Report

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : Tack coat
Date of test : 09-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.801	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.021	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.233	0.222
7	Average	Kg/sq.m	0.228	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-14-01 Date: 15-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st A Cross Road - Talacauvery Layout
Date of test : 14-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	473.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.50	5.70
7	Average percentage	%	5.60	



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Kodigehalli Sub Division
BBMP, Bangalore



Lab ID : CP-RW-2023-02-14-01

Date: 15-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	21	21	4.4	95.6	90-100
9.5	47	68	14.3	85.7	70-88
4.75	139	207	43.6	56.4	53-71
2.36	41	248	52.3	47.7	42-58
1.18	34	282	59.4	40.6	34-48
0.6	20	302	63.6	36.4	26-38
0.3	41	343	72.3	27.7	18-28
0.15	40	383	80.7	19.3	12-20
0.075	53	436	91.9	8.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	10	10	2.1	97.9	90-100
9.5	69	79	16.7	83.3	70-88
4.75	116	195	41.2	58.8	53-71
2.36	60	255	53.9	46.1	42-58
1.18	35	290	61.2	38.8	34-48
0.6	16	306	64.6	35.4	26-38
0.3	42	348	73.5	26.5	18-28
0.15	43	391	82.6	17.4	12-20
0.075	45	436	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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BBMP, Bangalore



DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-02-14-01 Date: 15-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : Tack coat
Date of test : 14-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.222
7	Average	Kg/sq.m	0.244	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

Page 1/1

End of Report

Assistant Executive Engineer
Kodigebelli Sub Division
BBMP, Bangalore



**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-18-01 Date: 20-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st main Road Talacauvery layout
Date of test : 18-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Quality Manager

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



Lab ID : CP-RW-2023-03-18-01

Date: 20-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	26	26	5.5	94.5	90-100
9.5	57	83	17.5	82.5	70-88
4.75	125	208	43.9	56.1	53-71
2.36	46	254	53.6	46.4	42-58
1.18	43	297	62.7	37.3	34-48
0.6	33	330	69.6	30.4	26-38
0.3	40	370	78.1	21.9	18-28
0.15	31	401	84.6	15.4	12-20
0.075	38	439	92.6	7.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	30	30	6.3	93.7	90-100
9.5	70	100	21.1	78.9	70-88
4.75	116	216	45.5	54.5	53-71
2.36	50	266	56.0	44.0	42-58
1.18	39	305	64.2	35.8	34-48
0.6	32	337	70.9	29.1	26-38
0.3	40	377	79.4	20.6	18-28
0.15	33	410	86.3	13.7	12-20
0.075	34	444	93.5	6.5	4-10

* The results obtained are satisfactory as per standard requirements.



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Quality Manager

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-18-01 Date: 20-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-03-23
Type of Mix : Tack coat
Date of test : 18-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.244
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-03-20-01 Date: 21-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st main muniswamy gowda layout
Date of test : 20-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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KARTHIK RECHAN
Authorized Signatory
Quality Manager

Page 1/2

Assistant Executive Engineer
Kodigehalli Sub Division

BBMP, Bangalore



Lab ID : CP-RW-2023-03-20-01

Date: 21-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

:

475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	23	23	4.8	95.2	90-100
9.5	59	82	17.3	82.7	70-88
4.75	121	203	42.7	57.3	53-71
2.36	50	253	53.3	46.7	42-58
1.18	49	302	63.6	36.4	34-48
0.6	34	336	70.7	29.3	26-38
0.3	44	380	80.0	20.0	18-28
0.15	29	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

:

474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	74	107	22.6	77.4	70-88
4.75	110	217	45.7	54.3	53-71
2.36	50	267	56.3	43.7	42-58
1.18	40	307	64.7	35.3	34-48
0.6	38	345	72.7	27.3	26-38
0.3	37	382	80.5	19.5	18-28
0.15	30	412	86.8	13.2	12-20
0.075	30	442	93.2	6.8	4-10

* The results obtained are satisfactory as per standard requirements.



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KARTHIK RECHAN
Authorized Signatory
Quality Manager

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End of Report

Assistant Executive Engineer
Kodigehalli Sub Division

BMP, Bangalore

**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-03-20-01 **Date:** 21-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-03-23
Type of Mix : Tack coat
Date of test : 20-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.244
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 30-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 3rd cross chiranjeevi layout
Date of test : 29-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	473.5	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.70	5.60
7	Average percentage	%	5.65	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-03-29-01

Date: 30-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	55	83	17.5	82.5	70-88
4.75	124	207	43.7	56.3	53-71
2.36	53	260	54.9	45.1	42-58
1.18	41	301	63.6	36.4	34-48
0.6	37	338	71.4	28.6	26-38
0.3	35	373	78.8	21.2	18-28
0.15	30	403	85.1	14.9	12-20
0.075	46	449	94.8	5.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	73	106	22.4	77.6	70-88
4.75	105	211	44.5	55.5	53-71
2.36	46	257	54.2	45.8	42-58
1.18	43	300	63.3	36.7	34-48
0.6	41	341	71.9	28.1	26-38
0.3	39	380	80.2	19.8	18-28
0.15	24	404	85.2	14.8	12-20
0.075	34	438	92.4	7.6	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-29-01 Date: 30-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-03-23
Type of Mix : Tack coat
Date of test : 29-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.802	0.769
5	Weight of tack Coat (d=c-b)	Kg	0.022	0.021
6	Rate of spread of tack coat	Kg/sq.m	0.244	0.233
7	Average	Kg/sq.m	0.239	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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R. Karthik

R KARTHIK RECHAN

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End of Report

[Signature]

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Assistant Executive Engineer
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BBMP, Bangalore



**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 22-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-11-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 9th A Cross Road- Sahakar Nagara
Date of test : 20-11-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.60
7	Average percentage	%	5.50	



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KARTHIK RECHAN
Authorized Signatory
Quality Manager

Page 1/2

Assistant Executive Engineer
Kodigehalli Sub Division
Bangalore



Lab ID : CP-RW-2023-03-29-01

Date: 22-11-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	52	80	16.8	83.2	70-88
4.75	124	204	42.9	57.1	53-71
2.36	53	257	54.1	45.9	42-58
1.18	43	300	63.2	36.8	34-48
0.6	38	338	71.2	28.8	26-38
0.3	35	373	78.5	21.5	18-28
0.15	36	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	72	105	22.2	77.8	70-88
4.75	105	210	44.3	55.7	53-71
2.36	40	250	52.7	47.3	42-58
1.18	43	293	61.8	38.2	34-48
0.6	46	339	71.5	28.5	26-38
0.3	38	377	79.5	20.5	18-28
0.15	27	404	85.2	14.8	12-20
0.075	42	446	94.1	5.9	4-10

* The results obtained are satisfactory as per standard requirements.



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End of Report

Assistant Executive Engineer
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BBMP, Bangalore



DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-11-20-01 Date: 21-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-11-23
Type of Mix : Tack coat
Date of test : 20-11-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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Quality Manager

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

**NAME OF THE WORK: PACKAGE NO.03
(CONSISTS OF 5 WORKS)**

Second and Part Bill

Quality Control Reports

BOOK NO – 02

VOLUME-I WARD-07



QC ABSTRACT

NAME OF WORK: Package No-03 (Consists of 5 works)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
Materials						
1	Cement	Fineness by dry sieving	One Test		1	1
		Fineness by Air permeability method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
2	Coarse aggregate(40 mm down size)	Compressive Strength	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
3	Coarse aggregate(20 mm down size)	Water Absorption	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
4	Fine aggregate	Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Material finer than 75 micron	One Test		1	1
		ReBend test	One Test		1	1
5	Steel	Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
		Bend test	One Test		1	1
		Core Compressive Strength	One Test		1	1
6	Precast (100mm)	Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
		Core Compressive Strength	One Test		1	1
7	Precast (230mm)	Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
		Core Compressive Strength	One Test		1	1
8	RCC(M20)	Compressive Strength(7days and 28days)	8 sets	167.45	16	16



9	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
10	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
11	BC	Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
12	BITUMEN	Fire Point	One Test		1	1
13	TACK COAT	Rate of spread	One Test		1	1



TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988
IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability
IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11, (RA 2019) DETERMINATION OF DENSITY , Clause 6

Date of test : 28-11-22

Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	1.75	—
2	Finess by Air permeablity method (m ² /kg,Min)	281.4	225m ² /kg, Min
3	Density (gm/cc)	3.14	—
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	175 minutes	Not less than 30 minutes
6	Final Setting time	280 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-11-28-01 Date: 26-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988 , IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard
Cement Paste, Clause 5
IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6
Date of test : 28-11-22
Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	3 Days	29.0N/mm ²	Not less than 27 N/mm ²
2	7 Days	38.5N/mm ²	Not less than 37 N/mm ²
3	28 Days	57.5N/mm ²	Not less than 53 N/mm ²

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01 Date: 01-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : 40mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 28-11-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	242	242	1.6	98.4	90-100
3	20 mm	5437	5679	37.9	62.1	30-70
4	10 mm	4339	10018	66.8	33.2	10-35
5	4.75 mm	4649	14667	97.8	2.2	0-5
6	Pan	333	15000	100.0	0	---



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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01

Date: 01-12-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	10.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.6	
3	Specific Gravity	2.62	—
4	Bulk Density(Loose) (Kg/l)	1.47	—
5	Bulk Density(Compacted) (Kg/l)	1.51	—
6	Water Absorption(%)	0.22	—

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type/ Size : 20mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 28-11-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	240	240	4.8	95.2	90-100
3	10 mm	2567	2807	56.1	43.9	25-55
4	4.75 mm	2030	4837	96.7	3.3	0-10
5	Pan	163	5000	100	0	—



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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01

Date: 30-11-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.3	
3	Specific Gravity	2.65	—
4	Bulk Density(Loose) (Kg/l)	1.5	—
5	Bulk Density(Compacted) (Kg/l)	1.52	—
6	Water Absorption(%)	0.23	—
7	Aggregate crushing Value(%)	22.7	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	24.6	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : Fine Aggregate
Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
Date of test : 28-11-22
Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	78	78	7.8	92.2	90-100	90-100	90-100	95-100
3	2.36 mm	65	143	14.3	85.7	60-95	75-100	85-100	95-100
4	1.18 mm	244	387	38.7	61.3	30-70	55-90	75-100	90-100
5	600 micron	215	602	60.2	39.8	15-34	35-59	60-79	80-100
6	300 micron	178	780	78.0	22.0	5-20	8-30	12-40	15-50
7	150 micron	141	921	92.1	7.9	0-10	0-10	0-10	0-15
8	Pan	79	1000	100.0	0.0	---	---	---	---

Result : The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-11-28-01

Date: 30-11-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	—
2	Specific Gravity	2.59	—
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF STEEL

Lab ID : CP-2022-11-28-01 Date: 29-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : A-one Gold
Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.
Date of test: : 28-11-22

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm ²)	(N/mm ²)	(%)		
1	A-one Gold	Fe550	8	0.391	562	652	20.0%	Satisfactory	Satisfactory
2	A-one Gold	Fe550	10	0.616	568	672	20.0%	Satisfactory	Satisfactory
3	A-one Gold	Fe550	12	0.888	574	668	20.0%	Satisfactory	Satisfactory

* The results obtained are satisfactory as per standard requirements.



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Spectro Chemical Analysis, Physical, Non Destructive All Type of Metal Testing

Lab ID : CP-2022-11-28-01 Date: 29-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type / Grade : A-one Gold
Date of test : 28-11-22

CHEMICAL ANALYSIS

Sl. No.	Chemical Contents	8mm	10mm	12mm	Max. Limits as per IS:1786-2008, Gr. Fe 550
1	Carbon (C) %	0.142	0.133	0.146	0.300 Max
2	Phosphor (P) %	0.035	0.041	0.042	0.050 Max
3	Sulphur (S) %	0.037	0.046	0.040	0.055 Max
4	Sulphur & Phosphorus %	0.082	0.060	0.078	0.100 Max

Note : The above material confirms to ASI S S 304 with respect to elements analysed

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 10/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - Veeranna palya 6th A Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	151.59 X 151.43 X 151.43	22955	8.649	429.3	18.7	18.4
2	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	149.85 X 150.26 X 149.28	22517	8.768	408.3	18.1	
3	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	149.34 X 151.74 X 151.64	22661	8.445	415.3	18.3	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 31/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - Veeranna palya 6th A Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 31/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	149.16 X 149.99 X 149.42	22371	8.257	518.4	23.2	22.9
2	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	151.08 X 150.72 X 150.64	22771	8.813	502.4	22.1	
3	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	149.31 X 149.46 X 149.36	22316	8.326	523.2	23.4	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 10/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.44 X 150.27 X 150.90	22757	8.496	410.2	18.0	18.3
2	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.98 X 151.83 X 150.68	23076	8.673	427.3	18.5	
3	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.28 X 151.62 X 149.69	22937	8.806	424.2	18.5	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 31/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 31/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	151.24 X 149.82 X 149.89	22658	8.390	532.2	23.5	23.2
2	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	149.76 X 151.16 X 150.78	22638	8.189	505.6	22.3	
3	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	150.95 X 151.53 X 149.77	22873	8.891	542.1	23.7	

* The results obtained are satisfactory as per standard requirements.



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****End of Report****

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-06-01 Date: 12/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th B Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 12/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	149.44 X 151.29 X 149.83	22609	8.826	422.0	18.7	18.5
2	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	151.91 X 151.43 X 150.17	23004	8.237	421.4	18.3	
3	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	150.97 X 151.56 X 149.18	22881	8.700	421.7	18.4	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-06-01 Date: 02/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th B Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 02/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	151.49 X 151.57 X 151.24	22962	8.668	529.5	23.1	23.0
2	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	149.29 X 151.24 X 150.56	22579	8.435	510.2	22.6	
3	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	150.12 X 151.31 X 151.37	22716	8.999	531.7	23.4	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-07-01 Date: 13/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th A Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 13/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	150.18 X 150.59 X 149.27	22615	8.979	418.9	18.5	18.5
2	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	151.56 X 149.13 X 151.37	22603	8.810	408.6	18.1	
3	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	150.31 X 151.26 X 151.73	22736	8.625	431.0	19.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-07-01 Date: 03/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th A Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 03/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	150.08 X 151.11 X 149.24	22679	8.553	530.2	23.4	23.4
2	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	150.47 X 149.98 X 150.16	22566	8.106	512.9	22.7	
3	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	151.47 X 151.25 X 149.25	22910	8.563	549.3	24.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-12-01 Date: 17/12/2022

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 12-12-22

Customer ID : Drain Bottom raft Concrete - Veeranna palya 6th cross road

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 17/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	151.62 X 149.84 X 149.28	22718	8.231	412.0	18.1	18.2
2	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	149.57 X 149.17 X 150.41	22311	8.366	408.7	18.3	
3	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	150.05 X 151.58 X 150.31	22744	8.407	415.6	18.3	

* The results obtained are satisfactory as per standard requirements.



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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-12-01 Date: 07/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 12-12-22
Customer ID : Drain Bottom raft Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 07/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	149.35 X 150.70 X 151.84	22508	8.819	533.9	23.7	23.0
2	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	150.26 X 151.27 X 149.56	22730	8.102	505.1	22.2	
3	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	149.88 X 150.26 X 149.49	22522	8.532	520.1	23.1	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-13-01 Date: 19/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 13-12-22
Customer ID : Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 19/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	151.85 X	22789	8.729	414.9	18.2	18.5
					150.08 X					
					149.72					
2	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	151.54 X	22936	8.686	426.5	18.6	
					151.35 X					
					150.83					
3	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	149.38 X	22294	8.793	415.8	18.7	
					149.24 X					
					149.72					

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-13-01 Date: 09/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 13-12-22
Customer ID : Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 09/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	150.72 X 149.38 X 149.46	22515	8.966	533.7	23.7	23.3
2	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	149.24 X 150.41 X 149.62	22448	8.604	504.8	22.5	
3	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	149.09 X 151.87 X 149.85	22642	8.983	537.8	23.8	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 21/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	150.02 X 150.34 X 151.85	22554	8.741	411.0	18.2	18.1
2	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	149.91 X 149.31 X 150.35	22383	8.974	405.2	18.1	
3	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	149.52 X 151.34 X 151.43	22629	8.479	408.5	18.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 11/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 11/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	149.87 X 151.07 X 149.26	22640	8.228	533.8	23.6	23.2
2	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	150.53 X 151.15 X 150.78	22753	8.746	503.2	22.1	
3	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	149.61 X 151.13 X 151.76	22611	8.961	541.8	24.0	

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Format No: CP/TF/01

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Lab ID : CP-2022-12-15-01 Date: 21/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	149.48 X 151.72 X 150.62	22678	8.143	409.5	18.1	18.4
2	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	149.82 X 149.79 X 150.81	22442	8.727	420.3	18.7	
3	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	150.93 X 149.60 X 149.47	22579	8.122	417.6	18.5	

* The results obtained are satisfactory as per standard requirements.

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****End of Report****



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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 11/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 11/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	151.92 X 150.36 X 150.85	22842	8.262	547.1	24.0	23.5
2	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	149.77 X 149.53 X 151.27	22394	8.789	510.7	22.8	
3	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	149.15 X 150.91 X 149.37	22509	8.922	535.1	23.8	

* The results obtained are satisfactory as per standard requirements.

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****End of Report****



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Format No: CP/TF/01

TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type/Size : Solid concrete blocks size (400X150X200)mm
Reference to BIS codes : IS : 2185 (Part 1) : 2005(RA 2020) Concrete Masonry Specification
Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test : 16-12-22

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10 ⁶	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm ³)	Kg	Kg/m ³	Kg/m ³	
1	403	153	200	12332	23.264	1886.5	1904.5	Not less than 1800Kg/m ³
2	402	150	200	12060	22.582	1872.5		
3	401	150	203	12210	23.864	1954.4		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.25	4.89	4.25	Shall not be more than 10% by mass
2	33.57	32.14	4.28		
3	33.44	32.24	3.59		

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Lab ID : CP-2022-12-16-01

Date: 20-12-22

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	400	153	199	Length : $\pm 5\text{mm}$ Breadth : $\pm 3\text{mm}$ Height : $\pm 3\text{mm}$
2	400	151	199	
3	402	151	199	
4	401	150	200	
5	404	149	200	
6	402	150	203	
7	403	151	199	
8	403	151	201	
9	402	150	201	
10	401	150	202	
11	402	150	203	
12	399	152	199	
13	402	151	200	
14	403	149	200	
15	399	150	201	
16	402	152	201	
17	402	152	203	
18	403	152	202	
19	401	150	200	
20	399	150	202	
Average of 20	401	151	201	

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Lab ID : CP-2022-12-16-01

Date: 20-12-22

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm ²)	(KN)	N/mm ²	(N/mm ²)
1	400	150	60071	260.0	4.3	4.2
2	403	152	61453	256.0	4.2	
3	402	153	61428	260.5	4.2	
4	400	150	59943	257.4	4.3	
5	400	149	59675	253.0	4.2	
6	404	150	60519	257.6	4.3	
7	402	151	60622	255.4	4.2	
8	403	153	61538	259.6	4.2	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	Minimum average	Minimum Individual units.
C (5.0)	5.00 N/mm ²	4.00 N/mm ²
C (4.0)	4.00 N/mm ²	3.20 N/mm ²

* The Results Obtained are Satisfactory as per Standard Requirements



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Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type /Size : Precast Cover Slab - 100mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 16/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.42	100.48	1.116	4707	99.7	21.2	19.7	24.6
2	Cover Slab-2	77.63	100.52	1.122	4732	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.51	100.51	1.118	4718	101.5	21.5	20.0	25.0

The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type /Size : Precast Cover Slab - 230mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 16/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.36	230.15	2.115	4699	100.6	21.4	19.9	24.9
2	Cover Slab-2	77.55	230.45	2.131	4722	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.42	230.68	2.110	4707	99.0	21.0	19.6	24.4

The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	225	225	2.0	98.0	95-100
22.4	2585	2810	25.5	74.5	60-80
11.2	2245	5055	46.0	54.0	40-60
4.75	2189	7244	65.9	34.1	25-40
2.36	1525	8769	79.7	20.3	15-30
0.6	1225	9994	90.9	9.1	8-22
0.075	638	10632	96.7	3.3	0-5

* The results obtained are satisfactory as per standard requirements.

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End of Report



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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	298.5	298.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	74.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	219.4	223.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.5
5	Aggregate impact value	(B/A)*100	26.3	24.8
6	Aggregate impact value (Mean of two tests)	Percentage	25.6	

* The results obtained are satisfactory as per standard requirements.

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End of Report



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**DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF
COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))**

Lab ID : CP-RW-2023-01-25-01 **Date:** 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	9.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	10.1%	
Combined Flakiness and Elongation Index for WMM	19.6%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : GKKV Layout
Date of test : 25-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	325	325	3.0	97.0	95-100
22.4	3488	3813	34.7	65.3	60-80
11.2	2055	5868	53.3	46.7	40-60
4.75	2014	7882	71.7	28.3	25-40
2.36	1011	8893	80.8	19.2	15-30
0.6	645	9538	86.7	13.3	8-22
0.075	1021	10559	96.0	4.0	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGREGATE IMPACT VALUE IS: 2386 Part IV

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : GKVK Layout
Date of test : 25-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.4	302.4
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	75.4	72.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	226.5	229.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.4
5	Aggregate impact value	(B/A)*100	24.9	23.8
6	Aggregate impact value (Mean of two tests)	Percentage	24.4	

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF
COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))**

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : GKVK Layout
Date of test : 25-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	318	318	2.9	97.1	95-100
22.4	3745	4063	36.9	63.1	60-80
11.2	2152	6215	56.5	43.5	40-60
4.75	1865	8080	73.5	26.5	25-40
2.36	1145	9225	83.9	16.1	15-30
0.6	788	10013	91.0	9.0	8-22
0.075	758	10771	97.9	2.1	0-5

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF AGGREGATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.7	301.7
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	72.5	73.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	228.6	227.3
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.6
5	Aggregate impact value	(B/A)*100	24.0	24.5
6	Aggregate impact value (Mean of two tests)	Percentage	24.2	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.4%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.7%	
Combined Flakiness and Elongation Index for WMM	25.1%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	302	302	2.7	97.3	95-100
22.4	3644	3946	35.9	64.1	60-80
11.2	2047	5993	54.5	45.5	40-60
4.75	1985	7978	72.5	27.5	25-40
2.36	1165	9143	83.1	16.9	15-30
0.6	769	9912	90.1	9.9	8-22
0.075	702	10614	96.5	3.5	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	303.5	303.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	75.6
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.4
5	Aggregate impact value	(B/A)*100	25.9	24.9
6	Aggregate impact value (Mean of two tests)	Percentage	25.4	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-28-01 **Date:** 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	10.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	13.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID : CP-RW-2023-01-28-01 **Date:** 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of test : 28-01-23

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	61	Min 45
2	Softening Point, °C	50.8	Min. 47°C
3	Ductility, cm	100	Min. 47 cm
4	Flash point, °C	310	Min. 220°C
	Fire point, °C	322	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM-Plant (Dense Bituminous Macadam)
Date of test : 28-01-23
Weight of Sample : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	250	250	5.00	95.00	90-100
19	350	600	12.00	88.00	71-95
13.2	450	1050	21.00	79.00	56-80
4.75	1750	2800	56.00	44.00	38-54
2.36	400	3200	64.00	36.00	28-42
0.3	1350	4550	91.00	9.00	7-21
0.075	250	4800	96.00	4.00	2-8
PAN	200	5000	0.00	0	0

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM (Dense Bituminous Macadam)
Date of test : 28-01-23

Table 500-6 : Physical Requirements for Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	9.0	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	8.0		
Strength	Aggregate Impact Value	20.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.



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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM (Dense Bituminous Mecadam)
Date of test : 28-01-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	—

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM(Dense Bitumnous Macadam)
Date of test : 28-01-23
Type of Binder : 60/70
% of Binder Used : 4.5%
Weight of Aggregate : 200.0 gm
Weight of Binder : 9 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2023-02-01-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 01-02-23
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC(Bitumenous Concrete)
Date of test : 01-02-23

Type of Binder : 60/70
% of Binder Used : 5.4%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.8 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.



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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-02-23

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-02-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	—

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-01-01 Date: 02-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya pura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Talacauvery layout 1st main Road
Date of test : 01-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.6	4.50
7	Average percentage	%	4.55	



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Lab ID : CP-RW-2023-02-01-01

Date: 02-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	14	14.4	3.01	97.0	90-100
19	24	38.4	8.02	92.0	71-95
13.2	120	158.4	33.07	66.9	56-80
4.75	96	254.4	53.11	46.9	38-54
2.36	80	334.4	69.81	30.2	28-42
0.3	62	396.8	82.84	17.2	7-21
0.075	53	449.6	93.86	6.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	15	14.8	3.09	96.9	90-100
19	24	38.8	8.09	91.9	71-95
13.2	120	158.8	33.12	66.9	56-80
4.75	96	254.8	53.14	46.9	38-54
2.36	78	332.8	69.41	30.6	28-42
0.3	62	395.2	82.42	17.6	7-21
0.075	53	448	93.43	6.6	2-8

* The results obtained are satisfactory as per standard requirements.



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End of Report

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-02-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 02-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Muniswamy gowda layout- 1st Main Road
Date of test : 02-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.50
7	Average percentage	%	4.50	



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Assistant Executive Engineer
Kodigehalli Sub Division



Lab ID : CP-RW-2023-02-02-01

Date: 03-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	32	32	6.67	93.3	90-100
19	46	78	16.27	83.7	71-95
13.2	116	194	40.46	59.5	56-80
4.75	76	270	56.31	43.7	38-54
2.36	38	308	64.23	35.8	28-42
0.3	76	384	80.08	19.9	7-21
0.075	59	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	26	26	5.42	94.6	90-100
19	32	58	12.10	87.9	71-95
13.2	145	203	42.34	57.7	56-80
4.75	78	281	58.60	41.4	38-54
2.36	32	313	65.28	34.7	28-42
0.3	69	382	79.67	20.3	7-21
0.075	71	453	94.47	5.5	2-8

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-02-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 02-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : GKV layout - Main Road
Date of test : 02-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.70	4.50
7	Average percentage	%	4.60	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-02-01

Date: 03-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	33	33	6.90	93.1	90-100
19	45	78	16.30	83.7	71-95
13.2	112	190	39.71	60.3	56-80
4.75	79	269	56.22	43.8	38-54
2.36	40	309	64.58	35.4	28-42
0.3	73	382	79.83	20.2	7-21
0.075	63	445	93.00	7.0	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	28	28	5.84	94.2	90-100
19	34	62	12.93	87.1	71-95
13.2	148	210	43.80	56.2	56-80
4.75	80	290	60.48	39.5	38-54
2.36	35	325	67.78	32.2	28-42
0.3	70	395	82.38	17.6	7-21
0.075	66	461	96.14	3.9	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-03-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 03-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Veerannapalya - 6th A & 6th Cross Road
Date of test : 03-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.60
7	Average percentage	%	4.55	



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Cyanide Halli Sub Division
BBMP, Bangalore



Lab ID : CP-RW-2023-02-03-01

Date: 04-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	36	36	7.51	92.5	90-100
19	40	76	15.85	84.2	71-95
13.2	108	184	38.37	61.6	56-80
4.75	77	261	54.43	45.6	38-54
2.36	42	303	63.19	36.8	28-42
0.3	80	383	79.87	20.1	7-21
0.075	60	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	30	30	6.26	93.7	90-100
19	36	66	13.78	86.2	71-95
13.2	130	196	40.92	59.1	56-80
4.75	82	278	58.04	42.0	38-54
2.36	37	315	65.76	34.2	28-42
0.3	73	388	81.00	19.0	7-21
0.075	63	451	94.15	5.8	2-8

* The results obtained are satisfactory as per standard requirements.



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Assistant Executive Engineer
Rodigehalli Sub Division
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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-06-01 Date: 07-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Talacauvery layout 1st main Road
Date of test : 06-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.50
7	Average percentage	%	5.55	



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Executive Engineer
Sub Division
BBMP, Bangalore



Lab ID : CP-RW-2023-02-06-01

Date: 07-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	32	32	6.8	93.2	90-100
9.5	45	77	16.2	83.8	70-88
4.75	123	200	42.2	57.8	53-71
2.36	62	262	55.3	44.7	42-58
1.18	38	300	63.3	36.7	34-48
0.6	22	322	67.9	32.1	26-38
0.3	48	370	78.1	21.9	18-28
0.15	38	408	86.1	13.9	12-20
0.075	28	436	92.0	8.0	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	36	36	7.6	92.4	90-100
9.5	49	85	17.9	82.1	70-88
4.75	96	181	38.1	61.9	53-71
2.36	69	250	52.7	47.3	42-58
1.18	53	303	63.9	36.1	34-48
0.6	25	328	69.1	30.9	26-38
0.3	49	377	79.5	20.5	18-28
0.15	20	397	83.7	16.3	12-20
0.075	40	437	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-06-01 **Date:** 07-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-02-23
Type of Mix : Tack coat
Date of test : 06-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-07-01 Date: 08-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd A Cross Road- Talacauvery Layout
Date of test : 07-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-07-01

Date: 08-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

: 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	52.8	47.2	42-58
1.18	39	290	61.1	38.9	34-48
0.6	15	305	64.2	35.8	26-38
0.3	46	351	73.9	26.1	18-28
0.15	45	396	83.4	16.6	12-20
0.075	39	435	91.6	8.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

: 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.1	43.9	42-58
1.18	29	295	62.2	37.8	34-48
0.6	11	306	64.5	35.5	26-38
0.3	46	352	74.2	25.8	18-28
0.15	45	397	83.7	16.3	12-20
0.075	35	432	91.0	9.0	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-07-01 **Date:** 08-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-02-23
Type of Mix : Tack coat
Date of test : 07-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.244
7	Average	Kg/sq.m	0.250	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd Cross Road - Talacauvery Layout
Date of test : 09-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-02-09-01

Date: 10-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	53.0	47.0	42-58
1.18	39	290	61.2	38.8	34-48
0.6	15	305	64.3	35.7	26-38
0.3	46	351	74.1	25.9	18-28
0.15	45	396	83.5	16.5	12-20
0.075	39	435	91.8	8.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.0	44.0	42-58
1.18	29	295	62.1	37.9	34-48
0.6	11	306	64.4	35.6	26-38
0.3	46	352	74.1	25.9	18-28
0.15	45	397	83.6	16.4	12-20
0.075	35	432	90.9	9.1	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : Tack coat
Date of test : 09-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.801	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.021	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.233	0.222
7	Average	Kg/sq.m	0.228	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-14-01 Date: 15-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st A Cross Road - Talacauvery Layout
Date of test : 14-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	473.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.50	5.70
7	Average percentage	%	5.60	



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Lab ID : CP-RW-2023-02-14-01

Date: 15-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	21	21	4.4	95.6	90-100
9.5	47	68	14.3	85.7	70-88
4.75	139	207	43.6	56.4	53-71
2.36	41	248	52.3	47.7	42-58
1.18	34	282	59.4	40.6	34-48
0.6	20	302	63.6	36.4	26-38
0.3	41	343	72.3	27.7	18-28
0.15	40	383	80.7	19.3	12-20
0.075	53	436	91.9	8.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	10	10	2.1	97.9	90-100
9.5	69	79	16.7	83.3	70-88
4.75	116	195	41.2	58.8	53-71
2.36	60	255	53.9	46.1	42-58
1.18	35	290	61.2	38.8	34-48
0.6	16	306	64.6	35.4	26-38
0.3	42	348	73.5	26.5	18-28
0.15	43	391	82.6	17.4	12-20
0.075	45	436	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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BBMP, Bangalore

**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-14-01 **Date:** 15-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : Tack coat
Date of test : 14-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.222
7	Average	Kg/sq.m	0.244	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-03-18-01 Date: 20-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st main Road Talacauvery layout
Date of test : 18-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-03-18-01

Date: 20-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	26	26	5.5	94.5	90-100
9.5	57	83	17.5	82.5	70-88
4.75	125	208	43.9	56.1	53-71
2.36	46	254	53.6	46.4	42-58
1.18	43	297	62.7	37.3	34-48
0.6	33	330	69.6	30.4	26-38
0.3	40	370	78.1	21.9	18-28
0.15	31	401	84.6	15.4	12-20
0.075	38	439	92.6	7.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	30	30	6.3	93.7	90-100
9.5	70	100	21.1	78.9	70-88
4.75	116	216	45.5	54.5	53-71
2.36	50	266	56.0	44.0	42-58
1.18	39	305	64.2	35.8	34-48
0.6	32	337	70.9	29.1	26-38
0.3	40	377	79.4	20.6	18-28
0.15	33	410	86.3	13.7	12-20
0.075	34	444	93.5	6.5	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-18-01 Date: 20-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-03-23
Type of Mix : Tack coat
Date of test : 18-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.244
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-20-01 Date: 21-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st main muniswamy gowda layout
Date of test : 20-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-03-20-01

Date: 21-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

:

475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	23	23	4.8	95.2	90-100
9.5	59	82	17.3	82.7	70-88
4.75	121	203	42.7	57.3	53-71
2.36	50	253	53.3	46.7	42-58
1.18	49	302	63.6	36.4	34-48
0.6	34	336	70.7	29.3	26-38
0.3	44	380	80.0	20.0	18-28
0.15	29	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

:

474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	74	107	22.6	77.4	70-88
4.75	110	217	45.7	54.3	53-71
2.36	50	267	56.3	43.7	42-58
1.18	40	307	64.7	35.3	34-48
0.6	38	345	72.7	27.3	26-38
0.3	37	382	80.5	19.5	18-28
0.15	30	412	86.8	13.2	12-20
0.075	30	442	93.2	6.8	4-10

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-20-01 **Date:** 21-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-03-23
Type of Mix : Tack coat
Date of test : 20-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.244
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 30-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 3rd cross chiranjeevi layout
Date of test : 29-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	473.5	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.70	5.60
7	Average percentage	%	5.65	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-03-29-01

Date: 30-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	55	83	17.5	82.5	70-88
4.75	124	207	43.7	56.3	53-71
2.36	53	260	54.9	45.1	42-58
1.18	41	301	63.6	36.4	34-48
0.6	37	338	71.4	28.6	26-38
0.3	35	373	78.8	21.2	18-28
0.15	30	403	85.1	14.9	12-20
0.075	46	449	94.8	5.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	73	106	22.4	77.6	70-88
4.75	105	211	44.5	55.5	53-71
2.36	46	257	54.2	45.8	42-58
1.18	43	300	63.3	36.7	34-48
0.6	41	341	71.9	28.1	26-38
0.3	39	380	80.2	19.8	18-28
0.15	24	404	85.2	14.8	12-20
0.075	34	438	92.4	7.6	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-29-01 Date: 30-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-03-23
Type of Mix : Tack coat
Date of test : 29-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.802	0.769
5	Weight of tack Coat (d=c-b)	Kg	0.022	0.021
6	Rate of spread of tack coat	Kg/sq.m	0.244	0.233
7	Average	Kg/sq.m	0.239	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 22-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-11-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 9th A Cross Road- Sahakar Nagara
Date of test : 20-11-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.60
7	Average percentage	%	5.50	



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Assistant Executive Engineer
Kodigehalli Sub Division
Bangalore



Lab ID : CP-RW-2023-03-29-01

Date: 22-11-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	52	80	16.8	83.2	70-88
4.75	124	204	42.9	57.1	53-71
2.36	53	257	54.1	45.9	42-58
1.18	43	300	63.2	36.8	34-48
0.6	38	338	71.2	28.8	26-38
0.3	35	373	78.5	21.5	18-28
0.15	36	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	72	105	22.2	77.8	70-88
4.75	105	210	44.3	55.7	53-71
2.36	40	250	52.7	47.3	42-58
1.18	43	293	61.8	38.2	34-48
0.6	46	339	71.5	28.5	26-38
0.3	38	377	79.5	20.5	18-28
0.15	27	404	85.2	14.8	12-20
0.075	42	446	94.1	5.9	4-10

* The results obtained are satisfactory as per standard requirements.



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Quality Manager

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End of Report

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-11-20-01 Date: 21-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-11-23
Type of Mix : Tack coat
Date of test : 20-11-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**NAME OF THE WORK: PACKAGE NO.03
(CONSISTS OF 5 WORKS)**

Second and Part Bill

Quality Control Reports

BOOK NO – 02

VOLUME-I WARD-07



QC ABSTRACT

NAME OF WORK: Package No-03 (Consists of 5 works)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
Materials						
1	Cement	Fineness by dry sieving	One Test		1	1
		Fineness by Air permeability method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
2	Coarse aggregate(40 mm down size)	Compressive Strength	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
3	Coarse aggregate(20 mm down size)	Water Absorption	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
4	Fine aggregate	Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Material finer than 75 micron	One Test		1	1
		ReBend test	One Test		1	1
5	Steel	Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
		Bend test	One Test		1	1
		Core Compressive Strength	One Test		1	1
6	Precast (100mm)	Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
		Core Compressive Strength	One Test		1	1
7	Precast (230mm)	Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
		Core Compressive Strength	One Test		1	1
8	RCC(M20)	Compressive Strength(7days and 28days)	8 sets	167.45	16	16



9	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
10	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
11	BC	Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
		Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
12	BITUMEN	Fire Point	One Test		1	1
13	TACK COAT	Rate of spread	One Test		1	1



TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988
IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability
IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11, (RA 2019) DETERMINATION OF DENSITY , Clause 6

Date of test : 28-11-22

Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	1.75	—
2	Finess by Air permeablity method (m ² /kg,Min)	281.4	225m ² /kg, Min
3	Density (gm/cc)	3.14	—
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	175 minutes	Not less than 30 minutes
6	Final Setting time	280 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.



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R. Karthik

R KARTHIK RECHAN

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Quality Manager

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****End of Report****

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Assistant Executive Engineer
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BBMP, Bangalore



TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-11-28-01 Date: 26-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988 , IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6

Date of test : 28-11-22
Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	3 Days	29.0N/mm ²	Not less than 27 N/mm ²
2	7 Days	38.5N/mm ²	Not less than 37 N/mm ²
3	28 Days	57.5N/mm ²	Not less than 53 N/mm ²

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01 Date: 01-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : 40mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 28-11-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	242	242	1.6	98.4	90-100
3	20 mm	5437	5679	37.9	62.1	30-70
4	10 mm	4339	10018	66.8	33.2	10-35
5	4.75 mm	4649	14667	97.8	2.2	0-5
6	Pan	333	15000	100.0	0	---



Assistant Executive Engineer

Kodigehalli Sub Division

BEMP, Bangalore



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01

Date: 01-12-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	10.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.6	
3	Specific Gravity	2.62	—
4	Bulk Density(Loose) (Kg/l)	1.47	—
5	Bulk Density(Compacted) (Kg/l)	1.51	—
6	Water Absorption(%)	0.22	—

* The results obtained are satisfactory as per standard requirements.



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****End of Report****



Assistant Executive Engineer



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type/ Size : 20mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 28-11-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	240	240	4.8	95.2	90-100
3	10 mm	2567	2807	56.1	43.9	25-55
4	4.75 mm	2030	4837	96.7	3.3	0-10
5	Pan	163	5000	100	0	—



Assistant Executive Engineer
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BBMP, Bangalore



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-11-28-01

Date: 30-11-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.3	
3	Specific Gravity	2.65	—
4	Bulk Density(Loose) (Kg/l)	1.5	—
5	Bulk Density(Compacted) (Kg/l)	1.52	—
6	Water Absorption(%)	0.23	—
7	Aggregate crushing Value(%)	22.7	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	24.6	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-11-28-01 Date: 30-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : Fine Aggregate
Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
Date of test : 28-11-22
Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	78	78	7.8	92.2	90-100	90-100	90-100	95-100
3	2.36 mm	65	143	14.3	85.7	60-95	75-100	85-100	95-100
4	1.18 mm	244	387	38.7	61.3	30-70	55-90	75-100	90-100
5	600 micron	215	602	60.2	39.8	15-34	35-59	60-79	80-100
6	300 micron	178	780	78.0	22.0	5-20	8-30	12-40	15-50
7	150 micron	141	921	92.1	7.9	0-10	0-10	0-10	0-15
8	Pan	79	1000	100.0	0.0	---	---	---	---

Result : The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-11-28-01

Date: 30-11-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	—
2	Specific Gravity	2.59	—
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF STEEL

Lab ID : CP-2022-11-28-01 Date: 29-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type : A-one Gold
Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.
Date of test: : 28-11-22

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm ²)	(N/mm ²)	(%)		
1	A-one Gold	Fe550	8	0.391	562	652	20.0%	Satisfactory	Satisfactory
2	A-one Gold	Fe550	10	0.616	568	672	20.0%	Satisfactory	Satisfactory
3	A-one Gold	Fe550	12	0.888	574	668	20.0%	Satisfactory	Satisfactory

* The results obtained are satisfactory as per standard requirements.



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Spectro Chemical Analysis, Physical, Non Destructive All Type of Metal Testing

Lab ID : CP-2022-11-28-01 Date: 29-11-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-11-22
Sample Type / Grade : A-one Gold
Date of test : 28-11-22

CHEMICAL ANALYSIS

Sl. No.	Chemical Contents	8mm	10mm	12mm	Max. Limits as per IS:1786-2008, Gr. Fe 550
1	Carbon (C) %	0.142	0.133	0.146	0.300 Max
2	Phosphor (P) %	0.035	0.041	0.042	0.050 Max
3	Sulphur (S) %	0.037	0.046	0.040	0.055 Max
4	Sulphur & Phosphorus %	0.082	0.060	0.078	0.100 Max

Note : The above material confirms to ASI S S 304 with respect to elements analysed

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 10/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - Veeranna palya 6th A Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	151.59 X 151.43 X 151.43	22955	8.649	429.3	18.7	18.4
2	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	149.85 X 150.26 X 149.28	22517	8.768	408.3	18.1	
3	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	10/12/2022	149.34 X 151.74 X 151.64	22661	8.445	415.3	18.3	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 31/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - Veeranna palya 6th A Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 31/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	149.16 X 149.99 X 149.42	22371	8.257	518.4	23.2	22.9
2	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	151.08 X 150.72 X 150.64	22771	8.813	502.4	22.1	
3	Drain Bottom Raft Concrete - Veeranna palya 6th A Cross	M20	03/12/2022	31/12/2022	149.31 X 149.46 X 149.36	22316	8.326	523.2	23.4	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 10/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.44 X 150.27 X 150.90	22757	8.496	410.2	18.0	18.3
2	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.98 X 151.83 X 150.68	23076	8.673	427.3	18.5	
3	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	10/12/2022	151.28 X 151.62 X 149.69	22937	8.806	424.2	18.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-05-01 Date: 31/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 05-12-22
Customer ID : Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 31/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	151.24 X 149.82 X 149.89	22658	8.390	532.2	23.5	23.2
2	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	149.76 X 151.16 X 150.78	22638	8.189	505.6	22.3	
3	Drain Bottom Raft Concrete - 6th B Cross Road, Veeranna palya	M20	03/12/2022	31/12/2022	150.95 X 151.53 X 149.77	22873	8.891	542.1	23.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-06-01 Date: 12/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th B Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 12/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	149.44 X 151.29 X 149.83	22609	8.826	422.0	18.7	18.5
2	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	151.91 X 151.43 X 150.17	23004	8.237	421.4	18.3	
3	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	12/12/2022	150.97 X 151.56 X 149.18	22881	8.700	421.7	18.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-06-01 Date: 02/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th B Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 02/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	151.49 X 151.57 X 151.24	22962	8.668	529.5	23.1	23.0
2	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	149.29 X 151.24 X 150.56	22579	8.435	510.2	22.6	
3	Drain Side Wall Concrete - Veeranna palya 6th B Cross Road	M20	05/12/2022	02/01/2023	150.12 X 151.31 X 151.37	22716	8.999	531.7	23.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-07-01 Date: 13/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th A Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 13/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	150.18 X 150.59 X 149.27	22615	8.979	418.9	18.5	18.5
2	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	151.56 X 149.13 X 151.37	22603	8.810	408.6	18.1	
3	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	13/12/2022	150.31 X 151.26 X 151.73	22736	8.625	431.0	19.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-07-01 Date: 03/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th A Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 03/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	150.08 X 151.11 X 149.24	22679	8.553	530.2	23.4	23.4
2	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	150.47 X 149.98 X 150.16	22566	8.106	512.9	22.7	
3	Drain Side Wall Concrete - Veeranna palya 6th A Cross Road	M20	06/12/2022	03/01/2023	151.47 X 151.25 X 149.25	22910	8.563	549.3	24.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-12-01 Date: 17/12/2022

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 12-12-22

Customer ID : Drain Bottom raft Concrete - Veeranna palya 6th cross road

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 17/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	151.62 X 149.84 X 149.28	22718	8.231	412.0	18.1	18.2
2	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	149.57 X 149.17 X 150.41	22311	8.366	408.7	18.3	
3	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	17/12/2022	150.05 X 151.58 X 150.31	22744	8.407	415.6	18.3	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-12-01 Date: 07/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 12-12-22
Customer ID : Drain Bottom raft Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 07/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	149.35 X 150.70 X 151.84	22508	8.819	533.9	23.7	23.0
2	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	150.26 X 151.27 X 149.56	22730	8.102	505.1	22.2	
3	Drain Bottom raft Concrete - Veeranna palya 6th cross road	M20	10/12/2022	07/01/2023	149.88 X 150.26 X 149.49	22522	8.532	520.1	23.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-13-01 Date: 19/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 13-12-22
Customer ID : Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 19/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	151.85 X	22789	8.729	414.9	18.2	18.5
					150.08 X					
					149.72					
2	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	151.54 X	22936	8.686	426.5	18.6	
					151.35 X					
					150.83					
3	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	19/12/2022	149.38 X	22294	8.793	415.8	18.7	
					149.24 X					
					149.72					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-13-01 Date: 09/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 13-12-22
Customer ID : Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 09/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	150.72 X 149.38 X 149.46	22515	8.966	533.7	23.7	23.3
2	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	149.24 X 150.41 X 149.62	22448	8.604	504.8	22.5	
3	Culvert Bottom Raft Concrete - Muniswamy Gowda Layout 2nd cross road	M20	12/12/2022	09/01/2023	149.09 X 151.87 X 149.85	22642	8.983	537.8	23.8	

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Lab ID : CP-2022-12-15-01 Date: 21/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	150.02 X 150.34 X 151.85	22554	8.741	411.0	18.2	18.1
2	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	149.91 X 149.31 X 150.35	22383	8.974	405.2	18.1	
3	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	21/12/2022	149.52 X 151.34 X 151.43	22629	8.479	408.5	18.1	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 11/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 11/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	149.87 X 151.07 X 149.26	22640	8.228	533.8	23.6	23.2
2	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	150.53 X 151.15 X 150.78	22753	8.746	503.2	22.1	
3	Culvert Side Wall Concrete- Muniswamy Gowda Layout 2nd cross road	M20	14/12/2022	11/01/2023	149.61 X 151.13 X 151.76	22611	8.961	541.8	24.0	

* The results obtained are satisfactory as per standard requirements.



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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 21/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 21/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	149.48 X 151.72 X 150.62	22678	8.143	409.5	18.1	18.4
2	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	149.82 X 149.79 X 150.81	22442	8.727	420.3	18.7	
3	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	21/12/2022	150.93 X 149.60 X 149.47	22579	8.122	417.6	18.5	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-15-01 Date: 11/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-12-22
Customer ID : Drain Side Wall Concrete - Veeranna palya 6th cross road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 11/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	151.92 X 150.36 X 150.85	22842	8.262	547.1	24.0	23.5
2	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	149.77 X 149.53 X 151.27	22394	8.789	510.7	22.8	
3	Drain Side Wall Concrete - Veeranna palya 6th cross road	M20	14/12/2022	11/01/2023	149.15 X 150.91 X 149.37	22509	8.922	535.1	23.8	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type/Size : Solid concrete blocks size (400X150X200)mm
Reference to BIS codes : IS : 2185 (Part 1) : 2005(RA 2020) Concrete Masonry Specification
Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test : 16-12-22

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10 ⁶	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm ³)	Kg	Kg/m ³	Kg/m ³	
1	403	153	200	12332	23.264	1886.5	1904.5	Not less than 1800Kg/m ³
2	402	150	200	12060	22.582	1872.5		
3	401	150	203	12210	23.864	1954.4		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.25	4.89	4.25	Shall not be more than 10% by mass
2	33.57	32.14	4.28		
3	33.44	32.24	3.59		

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Lab ID : CP-2022-12-16-01

Date: 20-12-22

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	400	153	199	Length : $\pm 5\text{mm}$ Breadth : $\pm 3\text{mm}$ Height : $\pm 3\text{mm}$
2	400	151	199	
3	402	151	199	
4	401	150	200	
5	404	149	200	
6	402	150	203	
7	403	151	199	
8	403	151	201	
9	402	150	201	
10	401	150	202	
11	402	150	203	
12	399	152	199	
13	402	151	200	
14	403	149	200	
15	399	150	201	
16	402	152	201	
17	402	152	203	
18	403	152	202	
19	401	150	200	
20	399	150	202	
Average of 20	401	151	201	

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Lab ID : CP-2022-12-16-01

Date: 20-12-22

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm ²)	(KN)	N/mm ²	(N/mm ²)
1	400	150	60071	260.0	4.3	4.2
2	403	152	61453	256.0	4.2	
3	402	153	61428	260.5	4.2	
4	400	150	59943	257.4	4.3	
5	400	149	59675	253.0	4.2	
6	404	150	60519	257.6	4.3	
7	402	151	60622	255.4	4.2	
8	403	153	61538	259.6	4.2	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	Minimum average	Minimum Individual units.
C (5.0)	5.00 N/mm ²	4.00 N/mm ²
C (4.0)	4.00 N/mm ²	3.20 N/mm ²

* The Results Obtained are Satisfactory as per Standard Requirements



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Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type /Size : Precast Cover Slab - 100mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 16/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.42	100.48	1.116	4707	99.7	21.2	19.7	24.6
2	Cover Slab-2	77.63	100.52	1.122	4732	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.51	100.51	1.118	4718	101.5	21.5	20.0	25.0

The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 20-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-12-22
Sample Type /Size : Precast Cover Slab - 230mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 16/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.36	230.15	2.115	4699	100.6	21.4	19.9	24.9
2	Cover Slab-2	77.55	230.45	2.131	4722	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.42	230.68	2.110	4707	99.0	21.0	19.6	24.4

The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	225	225	2.0	98.0	95-100
22.4	2585	2810	25.5	74.5	60-80
11.2	2245	5055	46.0	54.0	40-60
4.75	2189	7244	65.9	34.1	25-40
2.36	1525	8769	79.7	20.3	15-30
0.6	1225	9994	90.9	9.1	8-22
0.075	638	10632	96.7	3.3	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	298.5	298.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	74.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	219.4	223.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.5
5	Aggregate impact value	(B/A)*100	26.3	24.8
6	Aggregate impact value (Mean of two tests)	Percentage	25.6	

* The results obtained are satisfactory as per standard requirements.

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**DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF
COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))**

Lab ID : CP-RW-2023-01-25-01 **Date:** 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Talacauvery Layout
Date of test : 25-01-23

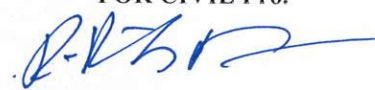
Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	9.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	10.1%	
Combined Flakiness and Elongation Index for WMM	19.6%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : GKKV Layout
Date of test : 25-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	325	325	3.0	97.0	95-100
22.4	3488	3813	34.7	65.3	60-80
11.2	2055	5868	53.3	46.7	40-60
4.75	2014	7882	71.7	28.3	25-40
2.36	1011	8893	80.8	19.2	15-30
0.6	645	9538	86.7	13.3	8-22
0.075	1021	10559	96.0	4.0	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE IS: 2386 Part IV

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : GKVK Layout
Date of test : 25-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.4	302.4
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	75.4	72.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	226.5	229.9
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.4
5	Aggregate impact value	(B/A)*100	24.9	23.8
6	Aggregate impact value (Mean of two tests)	Percentage	24.4	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-25-01 Date: 27-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : GKVK Layout
Date of test : 25-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Specified limits as per MORTH specification table 400-12
Flakiness Index	11.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	318	318	2.9	97.1	95-100
22.4	3745	4063	36.9	63.1	60-80
11.2	2152	6215	56.5	43.5	40-60
4.75	1865	8080	73.5	26.5	25-40
2.36	1145	9225	83.9	16.1	15-30
0.6	788	10013	91.0	9.0	8-22
0.075	758	10771	97.9	2.1	0-5

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF AGGREGATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.7	301.7
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	72.5	73.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	228.6	227.3
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.6
5	Aggregate impact value	(B/A)*100	24.0	24.5
6	Aggregate impact value (Mean of two tests)	Percentage	24.2	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Jai Rama & Muniswamy gowda layout
Date of test : 28-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.4%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.7%	
Combined Flakiness and Elongation Index for WMM	25.1%	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	302	302	2.7	97.3	95-100
22.4	3644	3946	35.9	64.1	60-80
11.2	2047	5993	54.5	45.5	40-60
4.75	1985	7978	72.5	27.5	25-40
2.36	1165	9143	83.1	16.9	15-30
0.6	769	9912	90.1	9.9	8-22
0.075	702	10614	96.5	3.5	0-5

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TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	303.5	303.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	75.6
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.4
5	Aggregate impact value	(B/A)*100	25.9	24.9
6	Aggregate impact value (Mean of two tests)	Percentage	25.4	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-01-28-01 Date: 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Veerannapalya
Date of test : 28-01-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	10.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	13.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT ON BITUMEN

Lab ID : CP-RW-2023-01-28-01 **Date:** 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of test : 28-01-23

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	61	Min 45
2	Softening Point, °C	50.8	Min. 47°C
3	Ductility, cm	100	Min. 47 cm
4	Flash point, °C	310	Min. 220°C
	Fire point, °C	322	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-01-28-01 **Date:** 30-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM-Plant (Dense Bituminous Macadam)
Date of test : 28-01-23
Weight of Sample : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	250	250	5.00	95.00	90-100
19	350	600	12.00	88.00	71-95
13.2	450	1050	21.00	79.00	56-80
4.75	1750	2800	56.00	44.00	38-54
2.36	400	3200	64.00	36.00	28-42
0.3	1350	4550	91.00	9.00	7-21
0.075	250	4800	96.00	4.00	2-8
PAN	200	5000	0.00	0	0

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM (Dense Bituminous Macadam)
Date of test : 28-01-23

Table 500-6 : Physical Requirements for Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	9.0	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	8.0		
Strength	Aggregate Impact Value	20.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.



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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM (Dense Bituminous Mecadam)
Date of test : 28-01-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	—

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-01-28-01 Date: 31-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 28-01-23
Type of Mix : DBM(Dense Bitumnous Macadam)
Date of test : 28-01-23
Type of Binder : 60/70
% of Binder Used : 4.5%
Weight of Aggregate : 200.0 gm
Weight of Binder : 9 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2023-02-01-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 01-02-23
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC(Bitumenous Concrete)
Date of test : 01-02-23

Type of Binder : 60/70
% of Binder Used : 5.4%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.8 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.



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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-02-23

Table 500-16 : Physical Requirements for Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.



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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-02-01-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-02-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	—

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-01-01 Date: 02-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya pura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Talacauvery layout 1st main Road
Date of test : 01-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.6	4.50
7	Average percentage	%	4.55	



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Lab ID : CP-RW-2023-02-01-01

Date: 02-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	14	14.4	3.01	97.0	90-100
19	24	38.4	8.02	92.0	71-95
13.2	120	158.4	33.07	66.9	56-80
4.75	96	254.4	53.11	46.9	38-54
2.36	80	334.4	69.81	30.2	28-42
0.3	62	396.8	82.84	17.2	7-21
0.075	53	449.6	93.86	6.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	15	14.8	3.09	96.9	90-100
19	24	38.8	8.09	91.9	71-95
13.2	120	158.8	33.12	66.9	56-80
4.75	96	254.8	53.14	46.9	38-54
2.36	78	332.8	69.41	30.6	28-42
0.3	62	395.2	82.42	17.6	7-21
0.075	53	448	93.43	6.6	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-02-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 02-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Muniswamy gowda layout- 1st Main Road
Date of test : 02-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.50
7	Average percentage	%	4.50	



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Assistant Executive Engineer
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Lab ID : CP-RW-2023-02-02-01

Date: 03-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	32	32	6.67	93.3	90-100
19	46	78	16.27	83.7	71-95
13.2	116	194	40.46	59.5	56-80
4.75	76	270	56.31	43.7	38-54
2.36	38	308	64.23	35.8	28-42
0.3	76	384	80.08	19.9	7-21
0.075	59	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	26	26	5.42	94.6	90-100
19	32	58	12.10	87.9	71-95
13.2	145	203	42.34	57.7	56-80
4.75	78	281	58.60	41.4	38-54
2.36	32	313	65.28	34.7	28-42
0.3	69	382	79.67	20.3	7-21
0.075	71	453	94.47	5.5	2-8

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-02-02-01 Date: 03-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 02-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : GKV layout - Main Road
Date of test : 02-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.70	4.50
7	Average percentage	%	4.60	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-02-01

Date: 03-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	33	33	6.90	93.1	90-100
19	45	78	16.30	83.7	71-95
13.2	112	190	39.71	60.3	56-80
4.75	79	269	56.22	43.8	38-54
2.36	40	309	64.58	35.4	28-42
0.3	73	382	79.83	20.2	7-21
0.075	63	445	93.00	7.0	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	28	28	5.84	94.2	90-100
19	34	62	12.93	87.1	71-95
13.2	148	210	43.80	56.2	56-80
4.75	80	290	60.48	39.5	38-54
2.36	35	325	67.78	32.2	28-42
0.3	70	395	82.38	17.6	7-21
0.075	66	461	96.14	3.9	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-03-01 Date: 04-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 03-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Veerannapalya - 6th A & 6th Cross Road
Date of test : 03-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.60
7	Average percentage	%	4.55	



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Assistant Executive Engineer
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BBMP, Bangalore



Lab ID : CP-RW-2023-02-03-01

Date: 04-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	36	36	7.51	92.5	90-100
19	40	76	15.85	84.2	71-95
13.2	108	184	38.37	61.6	56-80
4.75	77	261	54.43	45.6	38-54
2.36	42	303	63.19	36.8	28-42
0.3	80	383	79.87	20.1	7-21
0.075	60	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	30	30	6.26	93.7	90-100
19	36	66	13.78	86.2	71-95
13.2	130	196	40.92	59.1	56-80
4.75	82	278	58.04	42.0	38-54
2.36	37	315	65.76	34.2	28-42
0.3	73	388	81.00	19.0	7-21
0.075	63	451	94.15	5.8	2-8

* The results obtained are satisfactory as per standard requirements.



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End of Report

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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-06-01 Date: 07-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Talacauvery layout 1st main Road
Date of test : 06-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.50
7	Average percentage	%	5.55	



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Sub Division
BBMP, Bangalore



Lab ID : CP-RW-2023-02-06-01

Date: 07-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	32	32	6.8	93.2	90-100
9.5	45	77	16.2	83.8	70-88
4.75	123	200	42.2	57.8	53-71
2.36	62	262	55.3	44.7	42-58
1.18	38	300	63.3	36.7	34-48
0.6	22	322	67.9	32.1	26-38
0.3	48	370	78.1	21.9	18-28
0.15	38	408	86.1	13.9	12-20
0.075	28	436	92.0	8.0	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	36	36	7.6	92.4	90-100
9.5	49	85	17.9	82.1	70-88
4.75	96	181	38.1	61.9	53-71
2.36	69	250	52.7	47.3	42-58
1.18	53	303	63.9	36.1	34-48
0.6	25	328	69.1	30.9	26-38
0.3	49	377	79.5	20.5	18-28
0.15	20	397	83.7	16.3	12-20
0.075	40	437	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-06-01 Date: 07-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 06-02-23
Type of Mix : Tack coat
Date of test : 06-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-07-01 Date: 08-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd A Cross Road- Talacauvery Layout
Date of test : 07-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-07-01

Date: 08-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

:

475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	52.8	47.2	42-58
1.18	39	290	61.1	38.9	34-48
0.6	15	305	64.2	35.8	26-38
0.3	46	351	73.9	26.1	18-28
0.15	45	396	83.4	16.6	12-20
0.075	39	435	91.6	8.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

:

474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.1	43.9	42-58
1.18	29	295	62.2	37.8	34-48
0.6	11	306	64.5	35.5	26-38
0.3	46	352	74.2	25.8	18-28
0.15	45	397	83.7	16.3	12-20
0.075	35	432	91.0	9.0	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-07-01 **Date:** 08-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 07-02-23
Type of Mix : Tack coat
Date of test : 07-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.244
7	Average	Kg/sq.m	0.250	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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R KARTHIK RECHAN
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End of Report

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd Cross Road - Talacauvery Layout
Date of test : 09-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-02-09-01

Date: 10-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	53.0	47.0	42-58
1.18	39	290	61.2	38.8	34-48
0.6	15	305	64.3	35.7	26-38
0.3	46	351	74.1	25.9	18-28
0.15	45	396	83.5	16.5	12-20
0.075	39	435	91.8	8.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.0	44.0	42-58
1.18	29	295	62.1	37.9	34-48
0.6	11	306	64.4	35.6	26-38
0.3	46	352	74.1	25.9	18-28
0.15	45	397	83.6	16.4	12-20
0.075	35	432	90.9	9.1	4-10

* The results obtained are satisfactory as per standard requirements.



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BBMP, Bangalore



DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-02-09-01 Date: 10-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-02-23
Type of Mix : Tack coat
Date of test : 09-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.801	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.021	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.233	0.222
7	Average	Kg/sq.m	0.228	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-14-01 Date: 15-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st A Cross Road - Talacauvery Layout
Date of test : 14-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	473.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.50	5.70
7	Average percentage	%	5.60	



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Lab ID : CP-RW-2023-02-14-01

Date: 15-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	21	21	4.4	95.6	90-100
9.5	47	68	14.3	85.7	70-88
4.75	139	207	43.6	56.4	53-71
2.36	41	248	52.3	47.7	42-58
1.18	34	282	59.4	40.6	34-48
0.6	20	302	63.6	36.4	26-38
0.3	41	343	72.3	27.7	18-28
0.15	40	383	80.7	19.3	12-20
0.075	53	436	91.9	8.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	10	10	2.1	97.9	90-100
9.5	69	79	16.7	83.3	70-88
4.75	116	195	41.2	58.8	53-71
2.36	60	255	53.9	46.1	42-58
1.18	35	290	61.2	38.8	34-48
0.6	16	306	64.6	35.4	26-38
0.3	42	348	73.5	26.5	18-28
0.15	43	391	82.6	17.4	12-20
0.075	45	436	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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BBMP, Bangalore

**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-14-01 **Date:** 15-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : Tack coat
Date of test : 14-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.222
7	Average	Kg/sq.m	0.244	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-03-18-01 Date: 20-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st main Road Talacauvery layout
Date of test : 18-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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BBMP, Bangalore



Lab ID : CP-RW-2023-03-18-01

Date: 20-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	26	26	5.5	94.5	90-100
9.5	57	83	17.5	82.5	70-88
4.75	125	208	43.9	56.1	53-71
2.36	46	254	53.6	46.4	42-58
1.18	43	297	62.7	37.3	34-48
0.6	33	330	69.6	30.4	26-38
0.3	40	370	78.1	21.9	18-28
0.15	31	401	84.6	15.4	12-20
0.075	38	439	92.6	7.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	30	30	6.3	93.7	90-100
9.5	70	100	21.1	78.9	70-88
4.75	116	216	45.5	54.5	53-71
2.36	50	266	56.0	44.0	42-58
1.18	39	305	64.2	35.8	34-48
0.6	32	337	70.9	29.1	26-38
0.3	40	377	79.4	20.6	18-28
0.15	33	410	86.3	13.7	12-20
0.075	34	444	93.5	6.5	4-10

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-18-01 Date: 20-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-03-23
Type of Mix : Tack coat
Date of test : 18-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.244
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-20-01 Date: 21-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st main muniswamy gowda layout
Date of test : 20-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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Lab ID : CP-RW-2023-03-20-01

Date: 21-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

:

475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	23	23	4.8	95.2	90-100
9.5	59	82	17.3	82.7	70-88
4.75	121	203	42.7	57.3	53-71
2.36	50	253	53.3	46.7	42-58
1.18	49	302	63.6	36.4	34-48
0.6	34	336	70.7	29.3	26-38
0.3	44	380	80.0	20.0	18-28
0.15	29	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

:

474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	74	107	22.6	77.4	70-88
4.75	110	217	45.7	54.3	53-71
2.36	50	267	56.3	43.7	42-58
1.18	40	307	64.7	35.3	34-48
0.6	38	345	72.7	27.3	26-38
0.3	37	382	80.5	19.5	18-28
0.15	30	412	86.8	13.2	12-20
0.075	30	442	93.2	6.8	4-10

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-20-01 **Date:** 21-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-03-23
Type of Mix : Tack coat
Date of test : 20-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.244
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 30-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-03-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 3rd cross chiranjeevi layout
Date of test : 29-03-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	473.5	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.70	5.60
7	Average percentage	%	5.65	



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BBMP, Bangalore



Lab ID : CP-RW-2023-03-29-01

Date: 30-03-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	55	83	17.5	82.5	70-88
4.75	124	207	43.7	56.3	53-71
2.36	53	260	54.9	45.1	42-58
1.18	41	301	63.6	36.4	34-48
0.6	37	338	71.4	28.6	26-38
0.3	35	373	78.8	21.2	18-28
0.15	30	403	85.1	14.9	12-20
0.075	46	449	94.8	5.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	73	106	22.4	77.6	70-88
4.75	105	211	44.5	55.5	53-71
2.36	46	257	54.2	45.8	42-58
1.18	43	300	63.3	36.7	34-48
0.6	41	341	71.9	28.1	26-38
0.3	39	380	80.2	19.8	18-28
0.15	24	404	85.2	14.8	12-20
0.075	34	438	92.4	7.6	4-10

* The results obtained are satisfactory as per standard requirements.



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End of Report

Assistant Executive Engineer
Kodigehalli Sub Division
UBMP, Bangalore



DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-03-29-01 Date: 30-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-03-23
Type of Mix : Tack coat
Date of test : 29-03-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.802	0.769
5	Weight of tack Coat (d=c-b)	Kg	0.022	0.021
6	Rate of spread of tack coat	Kg/sq.m	0.244	0.233
7	Average	Kg/sq.m	0.239	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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R. Karthik

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[Signature]

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BBMP, Bangalore



**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 22-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-11-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 9th A Cross Road- Sahakar Nagara
Date of test : 20-11-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.60
7	Average percentage	%	5.50	



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Page 1/2

Assistant Executive Engineer
Kodigehalli Sub Division
Bangalore



Lab ID : CP-RW-2023-03-29-01

Date: 22-11-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	52	80	16.8	83.2	70-88
4.75	124	204	42.9	57.1	53-71
2.36	53	257	54.1	45.9	42-58
1.18	43	300	63.2	36.8	34-48
0.6	38	338	71.2	28.8	26-38
0.3	35	373	78.5	21.5	18-28
0.15	36	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	72	105	22.2	77.8	70-88
4.75	105	210	44.3	55.7	53-71
2.36	40	250	52.7	47.3	42-58
1.18	43	293	61.8	38.2	34-48
0.6	46	339	71.5	28.5	26-38
0.3	38	377	79.5	20.5	18-28
0.15	27	404	85.2	14.8	12-20
0.075	42	446	94.1	5.9	4-10

* The results obtained are satisfactory as per standard requirements.



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Assistant Executive Engineer
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BMP, Bangalore

**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-11-20-01 Date: 21-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-11-23
Type of Mix : Tack coat
Date of test : 20-11-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**NAME OF THE WORK: PACKAGE NO.03
(CONSISTS OF 5 WORKS)**

Second and Part Bill

Quality Control Reports

BOOK NO – 02

VOLUME-II WARD-08



QC ABSTRACT

NAME OF WORK: Package No-03 (Consists of 5 works)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
Materials						
1	Cement	Fineness by dry sieving	One Test		1	1
		Finess by Air permeability method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
3	Coarse aggregate(20 mm down size)	Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
		Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
4	Fine aggregate	SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
5	Steel	Bend test	One Test		1	1
		Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
		ReBend test	One Test		1	1
6	KERB	Core Compressive strength	One Test		1	1
		Corrected Cylinder Compressive strength	One Test		1	1
		Equivalent Cube Compressive strength	One Test		1	1
7	Block(400*150*200)	BLOCK DENSITY	One Test		1	1
		WATER ABSORPTION	One Test		1	1
		DIMENSION ANALYSIS	One Test		1	1
		COMPRESSIVE STRENGTH	One Test		1	1

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BBMP, Bangalore



8	Precast (100mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
9	Precast (230mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
10	RCC(M20)	Compressive Strength(7days and 28days)	6 sets	125.6	12	12
11	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
12	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
13	BC	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
14	BITUMEN	Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
		Fire Point	One Test		1	1
15	TACK COAT	Rate of spread	One Test		1	1

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES



TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-12-14-01 Date: 16-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyaपुरa, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-12-22
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988
IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability
IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11, (RA 2019) DETERMINATION OF DENSITY , Clause 6

Date of test : 14-12-22

Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	1.85	—
2	Finess by Air permeablity method (m ² /kg.Min)	348.6	225m ² /kg. Min
3	Density (gm/cc)	3.15	—
4	Standard Consistency (%)	28.5%	Not specified
5	Initial Setting time	175 minutes	Not less than 30 minutes
6	Final Setting time	285 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore



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Quality Manager



TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2022-12-14-01 Date: 11-01-23

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 14-12-22

Sample Type : JSW 53grade

Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988 , IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6

Date of test : 14-12-22

Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	3 Days	29.5N/mm ²	Not less than 27 N/mm ²
2	7 Days	38.0N/mm ²	Not less than 37 N/mm ²
3	28 Days	57.0N/mm ²	Not less than 53 N/mm ²

* The results obtained are satisfactory as per standard requirements.


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Quality Manager



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-12-14-01 Date: 17-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-12-22
Sample Type : 40mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 14-12-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	215	215	1.4	98.6	90-100
3	20 mm	7455	7670	51.1	48.9	30-70
4	10 mm	4266	11936	79.6	20.4	10-35
5	4.75 mm	2844	14780	98.5	1.5	0-5
6	Pan	220	15000	100.0	0	---

Assistant Executive Engineer
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BBMP, Bangalore





TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-12-14-01

Date: 17-12-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.9	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.3	
3	Specific Gravity	2.64	—
4	Bulk Density(Loose) (Kg/l)	1.41	—
5	Bulk Density(Compacted) (Kg/l)	1.47	—
6	Water Absorption(%)	0.23	—

* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer
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****End of Report****



TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-12-14-01 Date: 16-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-12-22
Sample Type/ Size : 20mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 14-12-22

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	245	245	4.9	95.1	90-100
3	10 mm	2635	2880	57.6	42.4	25-55
4	4.75 mm	1780	4660	93.2	6.8	0-10
5	Pan	340	5000	100	0	

Page 1/2

Assistant Executive Engineer
Kadigehalli Sub Division
BBMP, Bangalore





TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-12-14-01

Date: 16-12-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.4	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.5	
3	Specific Gravity	2.66	—
4	Bulk Density(Loose) (Kg/l)	1.52	—
5	Bulk Density(Compacted) (Kg/l)	1.56	—
6	Water Absorption(%)	0.21	—
7	Aggregate crushing Value(%)	24.1	Max 30% for Aggregates to be used in concrete for wearing Surface. In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	23.7	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

* The results obtained are satisfactory as per standard requirements.

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BBMP, Bangalore



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Authorized Signature
Quality Manager



TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-12-14-01 Date: 16-12-22

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 17-12-22

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption

Date of test : 14-12-22

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	30	30	3.0	97.0	90-100	90-100	90-100	95-100
3	2.36 mm	51	81	8.1	91.9	60-95	75-100	85-100	95-100
4	1.18 mm	235	316	31.6	68.4	30-70	55-90	75-100	90-100
5	600 micron	201	517	51.7	48.3	15-34	35-59	60-79	80-100
6	300 micron	201	718	71.8	28.2	5-20	8-30	12-40	15-50
7	150 micron	190	908	90.8	9.2	0-10	0-10	0-10	0-15
8	Pan	92	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

Page 1/2

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore





TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-12-14-01

Date: 16-12-22

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	—
2	Specific Gravity	2.59	—
3	Material finer than 75 micron(%)	9.2	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST RESULTS OF STEEL

Lab ID : CP-2022-12-14-01 Date: 16-12-22

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 14-12-22

Sample Type : A-one Gold

Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.

Date of test: : 14-12-22

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm ²)	(N/mm ²)	(%)		
1	A-one Gold	Fe550	8	0.391	565	650	20.0%	Satisfactory	Satisfactory
2	A-one Gold	Fe550	10	0.616	560	668	20.0%	Satisfactory	Satisfactory
3	A-one Gold	Fe550	12	0.888	570	673	20.0%	Satisfactory	Satisfactory

* The results obtained are satisfactory as per standard requirements.

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WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Spectro Chemical Analysis, Physical, Non Destructive All Type of Metal Testing

Lab ID : CP-2022-12-14-01 Date: 16-12-22
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 14-12-22
Sample Type / Grade : A-one Gold
Date of test : 14-12-22

CHEMICAL ANALYSIS

Sl. No.	Chemical Contents	8mm	10mm	12mm	Max. Limits as per IS:1786-2008, Gr. Fe 550
1	Carbon (C) %	0.143	0.130	0.141	0.300 Max
2	Phosphor (P) %	0.036	0.042	0.041	0.050 Max
3	Sulphur (S) %	0.038	0.041	0.042	0.055 Max
4	Sulphur & Phosphorus %	0.081	0.058	0.076	0.100 Max

Note : The above material confirms to ASI S S 304 with respect to elements analysed

Assistant Executive Engineer
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 04-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-12-22
Sample Type /Size : Precast Cover Slab - 100mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 31/12/2022
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.52	100.40	1.110	4719	102.5	21.7	20.2	25.3
2	Cover Slab-2	77.21	100.38	1.121	4681	104.9	22.4	20.8	26.1
3	Cover Slab-3	77.18	100.22	1.115	4678	102.6	21.9	20.4	25.5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2022-12-16-01 Date: 04-01-23

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 31-12-22

Sample Type /Size : Precast Cover Slab - 230mm Thick

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete

Date of test : 31/12/2022

Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.25	230.25	2.119	4686	104.5	22.3	20.7	25.9
2	Cover Slab-2	77.36	230.42	2.130	4699	101.2	21.5	20.0	25.0
3	Cover Slab-3	77.49	230.11	2.112	4715	103.8	22.0	20.5	25.6

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Assistant Executive Engineer
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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-20-01 Date: 26/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-12-22
Customer ID : Drain Bottom Raft Concrete - A Block 1st Main AMCO Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 26/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - A Block 1st Main AMCO Layout	M20	19/12/2022	26/12/2022	149.82 X 151.65 X 150.92	22721	8.568	425.5	18.7	18.6
2	Drain Bottom Raft Concrete - A Block 1st Main AMCO Layout	M20	19/12/2022	26/12/2022	151.99 X 150.87 X 150.87	22931	8.157	416.4	18.2	
3	Drain Bottom Raft Concrete - A Block 1st Main AMCO Layout	M20	19/12/2022	26/12/2022	149.33 X 151.71 X 150.91	22655	8.110	425.9	18.8	

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Assistant Engineer
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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-20-01 Date: 16/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-12-22
Customer ID : Drain Bottom Raft Concrete - A Block 1st Main AMCO Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 16/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - A Block 1st Main AMCO Layout	M20	19/12/2022	16/01/2023	151.18 X 150.35 X 149.69	22730	8.799	531.5	23.4	23.0
2	Drain Bottom Raft Concrete - A Block 1st Main AMCO Layout	M20	19/12/2022	16/01/2023	149.12 X 151.80 X 151.01	22637	8.504	513.7	22.7	
3	Drain Bottom Raft Concrete - A Block 1st Main AMCO Layout	M20	19/12/2022	16/01/2023	149.28 X 149.43 X 150.80	22306	8.262	513.1	23.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-22-01 Date: 28/12/2022
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-22
Customer ID : Drain Side Wall Concrete - AMCO Layout , A Block 1st Main Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 28/12/2022

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - AMCO Layout , A Block 1st Main Road	M20	21/12/2022	28/12/2022	150.89 X 149.79 X 149.50	22601	8.749	407.8	18.0	18.3
2	Drain Side Wall Concrete - AMCO Layout , A Block 1st Main Road	M20	21/12/2022	28/12/2022	150.06 X 149.89 X 150.23	22493	8.281	408.3	18.2	
3	Drain Side Wall Concrete - AMCO Layout , A Block 1st Main Road	M20	21/12/2022	28/12/2022	150.71 X 150.97 X 150.47	22752	8.759	425.2	18.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-22-01 Date: 18/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-22
Customer ID : Drain Side Wall Concrete - AMCO Layout , A Block 1st Main Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 18/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - AMCO Layout , A Block 1st Main Road	M20	21/12/2022	18/01/2023	150.42 X 149.59 X 151.83	22502	8.537	521.4	23.2	23.1
2	Drain Side Wall Concrete - AMCO Layout , A Block 1st Main Road	M20	21/12/2022	18/01/2023	150.11 X 149.37 X 150.05	22422	8.597	504.3	22.5	
3	Drain Side Wall Concrete - AMCO Layout , A Block 1st Main Road	M20	21/12/2022	18/01/2023	149.77 X 149.96 X 151.51	22460	8.294	529.4	23.6	

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-27-01 Date: 02/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-12-22
Customer ID : Drain Bottom Raft Concrete - 1st Main AMCO Layout A Block
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 02/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 1st Main AMCO Layout A Block	M20	26/12/2022	02/01/2023	149.90 X 150.57 X 150.18	22570	8.195	414.9	18.4	18.7
2	Drain Bottom Raft Concrete - 1st Main AMCO Layout A Block	M20	26/12/2022	02/01/2023	149.48 X 151.82 X 151.25	22694	8.654	427.4	18.8	
3	Drain Bottom Raft Concrete - 1st Main AMCO Layout A Block	M20	26/12/2022	02/01/2023	150.80 X 149.89 X 149.88	22604	8.859	424.8	18.8	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-27-01 Date: 23/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-12-22
Customer ID : Drain Bottom Raft Concrete - 1st Main AMCO Layout A Block
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 23/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - 1st Main AMCO Layout A Block	M20	26/12/2022	23/01/2023	150.47 X 150.32 X 151.61	22618	8.951	532.2	23.5	23.1
2	Drain Bottom Raft Concrete - 1st Main AMCO Layout A Block	M20	26/12/2022	23/01/2023	150.77 X 149.70 X 150.09	22572	8.756	511.3	22.7	
3	Drain Bottom Raft Concrete - 1st Main AMCO Layout A Block	M20	26/12/2022	23/01/2023	149.75 X 149.85 X 150.52	22440	8.243	520.0	23.2	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-30-01 Date: 04/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 30-12-22
Customer ID : Culvert Bottom Raft Concrete - 1st Main Sarovara Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 04/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - 1st Main Sarovara Layout	M20	28/12/2022	04/01/2023	150.59 X					18.5
					150.55 X	22671	8.701	418.3	18.5	
					151.50					
2	Culvert Bottom Raft Concrete - 1st Main Sarovara Layout	M20	28/12/2022	04/01/2023	149.03 X					18.2
					151.39 X	22562	8.242	410.4	18.2	
					151.54					
3	Culvert Bottom Raft Concrete - 1st Main Sarovara Layout	M20	28/12/2022	04/01/2023	149.80 X					18.1
					149.29 X	22364	8.356	403.9	18.1	
					151.86					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-30-01 Date: 25/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 30-12-22
Customer ID : Culvert Bottom Raft Concrete - 1st Main Sarovara Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 25/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - 1st Main Sarovara Layout	M20	28/12/2022	25/01/2023	149.31 X 151.67 X 151.49	22647	8.284	542.9	24.0	23.3
2	Culvert Bottom Raft Concrete - 1st Main Sarovara Layout	M20	28/12/2022	25/01/2023	151.75 X 149.45 X 149.26	22680	8.809	518.1	22.8	
3	Culvert Bottom Raft Concrete - 1st Main Sarovara Layout	M20	28/12/2022	25/01/2023	150.29 X 151.59 X 149.15	22782	8.441	525.8	23.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-30-01 Date: 04/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 30-12-22
Customer ID : Drain Side Wall Concrete - 1st Main AMCO Layout A Block
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 04/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - 1st Main AMCO Layout A Block	M20	28/12/2022	04/01/2023	149.32 X 150.81 X 151.05	22520	8.309	410.2	18.2	18.3
2	Drain Side Wall Concrete - 1st Main AMCO Layout A Block	M20	28/12/2022	04/01/2023	149.06 X 151.52 X 151.45	22586	8.212	413.7	18.3	
3	Drain Side Wall Concrete - 1st Main AMCO Layout A Block	M20	28/12/2022	04/01/2023	151.89 X 151.17 X 151.98	22962	8.354	421.5	18.4	

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Lab ID : CP-2022-12-30-01 Date: 25/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 30-12-22
Customer ID : Drain Side Wall Concrete - 1st Main AMCO Layout A Block
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 25/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - 1st Main AMCO Layout A Block	M20	28/12/2022	25/01/2023	150.85 X 149.37 X 150.36	22532	8.972	522.5	23.2	22.9
2	Drain Side Wall Concrete - 1st Main AMCO Layout A Block	M20	28/12/2022	25/01/2023	150.91 X 150.85 X 151.38	22765	8.324	512.4	22.5	
3	Drain Side Wall Concrete - 1st Main AMCO Layout A Block	M20	28/12/2022	25/01/2023	149.98 X 150.27 X 149.13	22538	8.991	521.0	23.1	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-31-01 Date: 05/01/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 31-12-22

Customer ID : Culvert Side Wall Concrete - 1st Main Sarovara Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete - 1st Main Sarovara Layout	M20	29/12/2022	05/01/2023	150.44 X 149.11 X 151.36	22432	8.271	418.9	18.7	18.6
2	Culvert Side Wall Concrete - 1st Main Sarovara Layout	M20	29/12/2022	05/01/2023	150.90 X 151.07 X 150.21	22796	8.141	429.4	18.8	
3	Culvert Side Wall Concrete - 1st Main Sarovara Layout	M20	29/12/2022	05/01/2023	149.14 X 150.93 X 149.80	22511	8.271	411.2	18.3	

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2022-12-31-01 Date: 27/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-12-22
Customer ID : Culvert Side Wall Concrete - 1st Main Sarovara Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 26/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Side Wall Concrete - 1st Main Sarovara Layout	M20	29/12/2022	26/01/2023	149.63 X 151.03 X 149.52	22599	8.965	538.0	23.8	23.5
2	Culvert Side Wall Concrete - 1st Main Sarovara Layout	M20	29/12/2022	26/01/2023	150.24 X 150.61 X 149.58	22627	8.850	515.8	22.8	
3	Culvert Side Wall Concrete - 1st Main Sarovara Layout	M20	29/12/2022	26/01/2023	150.18 X 149.43 X 150.07	22442	8.173	537.8	24.0	

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE KERB STONE

Lab ID : CP-2022-12-31-01 Date: 04-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-12-22
Sample Type /Size : CC Kerb Stone/ 450*165*400mm
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 31/12/2022
Grade of Kerb : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	Kg	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	A	77.01	165.51	2.864	4657	102.3	22.0	22.0	27.5
2	B	77.32	165.49	2.793	4695	100.1	21.3	21.3	26.7
3	C	77.24	165.50	2.815	4685	103.1	22.0	22.0	27.5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID : CP-2022-12-31-01 Date: 04-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-12-22
Sample Type/Size : Solid concrete blocks size (400X150X200)mm
Reference to BIS codes : IS : 2185 (Part 1) : 2005(RA 2020) Concrete Masonry Specification
Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and 10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test : 31-12-22

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10 ⁶	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm ³)	Kg	Kg/m ³	Kg/m ³	
1	399	150	198	11850	21.624	1824.8	1811.1	Not less than 1800Kg/m ³
2	402	152	198	12099	21.024	1737.8		
3	402	151	200	12140	22.711	1870.7		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.29	4.79	4.23	Shall not be more than 10% by mass
2	33.57	32.16	4.22		
3	33.44	32.21	3.69		

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Lab ID : CP-2022-12-31-01

Date: 04-01-23

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	404	151	203	Length : $\pm 5\text{mm}$ Breadth : $\pm 3\text{mm}$ Height : $\pm 3\text{mm}$
2	403	150	199	
3	401	151	202	
4	403	153	202	
5	402	150	202	
6	401	151	203	
7	404	149	199	
8	399	149	202	
9	403	152	202	
10	400	152	201	
11	400	152	200	
12	400	149	202	
13	402	149	200	
14	403	151	200	
15	402	150	201	
16	404	152	201	
17	400	151	200	
18	401	150	203	
19	401	151	199	
20	400	151	201	
Average of 20	402	151	201	

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Lab ID : CP-2022-12-31-01

Date: 04-01-23

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm ²)	(KN)	N/mm ²	(N/mm ²)
1	400	150	60195	243.9	4.1	4.1
2	403	153	61626	249.8	4.1	
3	400	152	60700	260.0	4.3	
4	401	150	59959	244.5	4.1	
5	399	150	59869	254.4	4.3	
6	399	153	61005	243.4	4.0	
7	400	150	60019	248.3	4.1	
8	402	150	60311	258.8	4.3	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	Minimum average	Minimum Individual units.
C (5.0)	5.00 N/mm ²	4.00 N/mm ²
C (4.0)	4.00 N/mm ²	3.20 N/mm ²

* The Results Obtained are Satisfactory as per Standard Requirements

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-02-16-01 Date: 20-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Devinagar
Date of test : 16-02-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	245	245	2.2	97.8	95-100
22.4	2758	3003	27.3	72.7	60-80
11.2	2445	5448	49.5	50.5	40-60
4.75	2365	7813	71.0	29.0	25-40
2.36	1038	8851	80.5	19.5	15-30
0.6	988	9839	89.4	10.6	8-22
0.075	645	10484	95.3	4.7	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGREGATE IMPACT VALUE IS: 2386 Part IV

Lab ID : CP-RW-2023-02-16-01 Date: 20-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 16-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Devinagar
Date of test : 16-02-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	303.5	303.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	78.5	75.6
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.4
5	Aggregate impact value	(B/A)*100	25.9	24.9
6	Aggregate impact value (Mean of two tests)	Percentage	25.4	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-02-16-01 Date: 20-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Devinagar
Date of test : 16-02-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	24.4%	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT ON BITUMEN

Lab ID : CP-RW-2023-01-28-01 Date: 20-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of test : 16-02-23

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	62	Min 45
2	Softening Point, °C	50.4	Min. 47°C
3	Ductility, cm	100	Min. 47 cm
4	Flash point, °C	309	Min. 220°C
	Fire point, °C	320	

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-14-01 Date: 16-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : DBM-Plant (Dense Bituminous Macadam)
Date of test : 14-02-23
Weight of Sample : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	253	253	5.06	94.94	90-100
19	345	598	11.96	88.04	71-95
13.2	456	1054	21.08	78.92	56-80
4.75	1760	2814	56.28	43.72	38-54
2.36	405	3219	64.38	35.62	28-42
0.3	1360	4579	91.58	8.42	7-21
0.075	230	4809	96.18	3.82	2-8
PAN	191	5000	0.00	0	0

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID : CP-RW-2023-02-14-01 Date: 17-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Date of test : 14-02-23

Table 500-6 : Physical Requirements for Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	11.0	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	10.0		
Strength	Aggregate Impact Value	18.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

The results obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-02-14-01 Date: 17-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : DBM (Dense Bituminous Mecadam)
Date of test : 14-02-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

SLNo	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	—

* The results obtained are satisfactory as per standard requirements.


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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-02-14-01 Date: 17-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 14-02-23
Type of Mix : DBM(Dense Bitumnous Macadam)
Date of test : 14-02-23
Type of Binder : 60/70
% of Binder Used : 4.5%
Weight of Aggregate : 200.0 gm
Weight of Binder : 9 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-02-20-01 Date: 21-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Devinagar Main Road
Date of test : 20-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5 - W4 - W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.7	4.50
7	Average percentage	%	4.60	

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BBMP, Bangalore



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Lab ID : CP-RW-2023-02-20-01

Date: 21-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	16	16	3.34	96.7	90-100
19	26	42	8.78	91.2	71-95
13.2	122	164	34.27	65.7	56-80
4.75	95	259	54.13	45.9	38-54
2.36	78	337	70.43	29.6	28-42
0.3	60	397	82.97	17.0	7-21
0.075	51	448	93.63	6.4	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	13	13	2.71	97.3	90-100
19	27	40	8.34	91.7	71-95
13.2	124	164	34.20	65.8	56-80
4.75	92	256	53.39	46.6	38-54
2.36	75	331	69.03	31.0	28-42
0.3	60	391	81.54	18.5	7-21
0.075	60	451	94.06	5.9	2-8

* The results obtained are satisfactory as per standard requirements.

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End of Report



TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-02-21-01 Date: 22-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Sapthagiri Layout & Sarovar Layout
Date of test : 21-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	478
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5 = W4 - W3$	2	2
6	Bitumen percentage	$\frac{W1 - W2 + W5}{W1} \times 100$	4.6	4.80
7	Average percentage	%	4.70	

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Lab ID : CP-RW-2023-02-21-01

Date: 22-02-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	20	20	4.18	95.8	90-100
19	28	48	10.02	90.0	71-95
13.2	120	168	35.07	64.9	56-80
4.75	92	260	54.28	45.7	38-54
2.36	71	331	69.10	30.9	28-42
0.3	63	394	82.25	17.7	7-21
0.075	62	456	95.20	4.8	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 478

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	14	14	2.93	97.1	90-100
19	30	44	9.21	90.8	71-95
13.2	120	164	34.31	65.7	56-80
4.75	90	254	53.14	46.9	38-54
2.36	76	330	69.04	31.0	28-42
0.3	58	388	81.17	18.8	7-21
0.075	55	443	92.68	7.3	2-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-11-17-01 Date: 18-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-11-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : 3rd Cross Road - Amco Layout
Date of test : 17-11-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.7	4.60
7	Average percentage	%	4.65	

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Lab ID : CP-RW-2023-11-17-01

Date: 18-11-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	22	22	4.60	95.4	90-100
19	30	52	10.87	89.1	71-95
13.2	122	174	36.36	63.6	56-80
4.75	90	264	55.17	44.8	38-54
2.36	70	334	69.80	30.2	28-42
0.3	60	394	82.34	17.7	7-21
0.075	65	459	95.92	4.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	16	16	3.34	96.7	90-100
19	28	44	9.19	90.8	71-95
13.2	126	170	35.49	64.5	56-80
4.75	94	264	55.11	44.9	38-54
2.36	72	336	70.15	29.9	28-42
0.3	55	391	81.63	18.4	7-21
0.075	51	442	92.28	7.7	2-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2023-02-01-01 Date: 20-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 16-02-23
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	90	90	1.8	98.2	90-100
9.5	700	790	15.8	84.2	70-88
4.75	890	1680	33.6	66.4	53-71
2.36	590	2270	45.4	54.6	42-58
1.18	500	2770	55.4	44.6	34-48
0.6	498	3268	65.4	34.6	26-38
0.3	520	3788	75.8	24.2	18-28
0.15	460	4248	85.0	15.0	12-20
0.075	420	4668	93.4	6.6	4-10
PAN	332	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-02-01-01 Date: 20-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Type of Mix : BC(Bitumenous Concrete)
Date of test : 16-02-23

Type of Binder : 60/70
% of Binder Used : 5.4%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.8 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.4	1.6	98.4	Minimum Retained Coating 95%
2	98.8	1.2		
3	98.1	1.9		

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2023-02-01-01 Date: 20-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 16-02-23

Table 500-16 : Physical Requirements for Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.8	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.2		
Strength	Aggregate Impact Value	22.7	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.66	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.2	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-02-01-01 Date: 20-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-02-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 16-02-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.12	11.10	10KN(min)
2	Marshal flow at 60°C, mm	3.50	3.54	2-4
3	Percent air Voids	4.80	4.86	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.32	14.25	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.80	71.60	65-75
6	Density, g/cc	2.23	2.26	—

* The results obtained are satisfactory as per standard requirements.

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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-21-01 Date: 22-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Devi Nagar Main Road
Date of test : 21-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	473.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.70
7	Average percentage	%	5.55	

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Lab ID : CP-RW-2023-02-21-01

Date: 22-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	25	25	5.3	94.7	90-100
9.5	49	74	15.6	84.4	70-88
4.75	143	217	45.7	54.3	53-71
2.36	44	261	54.9	45.1	42-58
1.18	37	298	62.7	37.3	34-48
0.6	23	321	67.6	32.4	26-38
0.3	38	359	75.6	24.4	18-28
0.15	42	401	84.4	15.6	12-20
0.075	38	439	92.4	7.6	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	14	14	3.0	97.0	90-100
9.5	70	84	17.7	82.3	70-88
4.75	113	197	41.6	58.4	53-71
2.36	59	256	54.1	45.9	42-58
1.18	38	294	62.1	37.9	34-48
0.6	23	317	66.9	33.1	26-38
0.3	48	365	77.1	22.9	18-28
0.15	37	402	84.9	15.1	12-20
0.075	43	445	94.0	6.0	4-10

* The results obtained are satisfactory as per standard requirements.

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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-21-01 Date: 22-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Type of Mix : Tack coat
Date of test : 21-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.772
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.024
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.267
7	Average	Kg/sq.m	0.267	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer
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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-02-21-01 Date: 22-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st Main Road Muneshwara Layout
Date of test : 21-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	

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Lab ID : CP-RW-2023-02-21-01

Date: 22-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

: 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	32	32	6.8	93.2	90-100
9.5	50	82	17.3	82.7	70-88
4.75	128	210	44.3	55.7	53-71
2.36	39	249	52.5	47.5	42-58
1.18	34	283	59.7	40.3	34-48
0.6	25	308	65.0	35.0	26-38
0.3	40	348	73.4	26.6	18-28
0.15	40	388	81.9	18.1	12-20
0.075	52	440	92.8	7.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

: 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	18	18	3.8	96.2	90-100
9.5	73	91	19.2	80.8	70-88
4.75	110	201	42.3	57.7	53-71
2.36	60	261	54.9	45.1	42-58
1.18	34	295	62.1	37.9	34-48
0.6	28	323	68.0	32.0	26-38
0.3	50	373	78.5	21.5	18-28
0.15	29	402	84.6	15.4	12-20
0.075	40	442	93.1	6.9	4-10

* The results obtained are satisfactory as per standard requirements.

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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-02-21-01 **Date:** 22-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Type of Mix : Tack coat
Date of test : 21-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.773
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.025
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.278
7	Average	Kg/sq.m	0.267	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-02-21-01 Date: 22-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Devi Nagar Main Road
Date of test : 21-02-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.50
7	Average percentage	%	5.55	

Assistant Executive Engineer
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-02-21-01

Date: 22-02-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	31	31	6.5	93.5	90-100
9.5	53	84	17.7	82.3	70-88
4.75	123	207	43.7	56.3	53-71
2.36	40	247	52.1	47.9	42-58
1.18	38	285	60.1	39.9	34-48
0.6	28	313	66.0	34.0	26-38
0.3	37	350	73.8	26.2	18-28
0.15	39	389	82.1	17.9	12-20
0.075	50	439	92.6	7.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	26	26	5.5	94.5	90-100
9.5	69	95	20.0	80.0	70-88
4.75	113	208	43.8	56.2	53-71
2.36	57	265	55.8	44.2	42-58
1.18	37	302	63.6	36.4	34-48
0.6	30	332	70.0	30.0	26-38
0.3	48	380	80.1	19.9	18-28
0.15	30	410	86.4	13.6	12-20
0.075	34	444	93.6	6.4	4-10

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-02-21-01 Date: 22-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 21-02-23
Type of Mix : Tack coat
Date of test : 21-02-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.805	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.025	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.278	0.222
7	Average	Kg/sq.m	0.250	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-02-25-01 Date: 27-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-02-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Sarovara Layout
Date of test : 25-02-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	221	221	2.0	98.0	95-100
22.4	2475	2696	24.5	75.5	60-80
11.2	2345	5041	45.8	54.2	40-60
4.75	2013	7054	64.1	35.9	25-40
2.36	1147	8201	74.6	25.4	15-30
0.6	1065	9266	84.2	15.8	8-22
0.075	1268	10534	95.8	4.2	0-5

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGREGATE IMPACT VALUE IS: 2386 Part IV

Lab ID : CP-RW-2023-02-25-01 Date: 27-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Sarovara Layout
Date of test : 25-02-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.5	302.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	77.5	74.6
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.4
5	Aggregate impact value	(B/A)*100	25.6	24.7
6	Aggregate impact value (Mean of two tests)	Percentage	25.1	

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-02-25-01 Date: 27-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Sarovara Layout
Date of test : 25-02-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.3%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.7%	
Combined Flakiness and Elongation Index for WMM	25.0%	

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Saptagiri Layout
Date of test : 27-02-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	302	302	2.7	97.3	95-100
22.4	2475	2777	25.2	74.8	60-80
11.2	2745	5522	50.2	49.8	40-60
4.75	2145	7667	69.7	30.3	25-40
2.36	1258	8925	81.1	18.9	15-30
0.6	987	9912	90.1	9.9	8-22
0.075	898	10810	98.3	1.7	0-5

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGREGATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Saptagiri Layout
Date of test : 27-02-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.5	301.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	76.2	73.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.2
5	Aggregate impact value	(B/A)*100	25.3	24.5
6	Aggregate impact value (Mean of two tests)	Percentage	24.9	

* The results obtained are satisfactory as per standard requirements.

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Saptagiri Layout
Date of test : 27-02-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.3%	
Combined Flakiness and Elongation Index for WMM	24.2%	

* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : AMCO Layout
Date of test : 27-02-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	201	201	1.8	98.2	95-100
22.4	2399	2600	23.6	76.4	60-80
11.2	2185	4785	43.5	56.5	40-60
4.75	1988	6773	61.6	38.4	25-40
2.36	1658	8431	76.6	23.4	15-30
0.6	1495	9926	90.2	9.8	8-22
0.075	745	10671	97.0	3.0	0-5

* The results obtained are satisfactory as per standard requirements.

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WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES



TEST REPORT OF AGGEGRATE IMPACT VALUE IS: 2386 Part IV

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : AMCO Layout
Date of test : 27-02-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.2	302.9
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	77.3	74.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.1	0.6
5	Aggregate impact value	(B/A)*100	25.6	24.7
6	Aggregate impact value (Mean of two tests)	Percentage	25.1	

* The results obtained are satisfactory as per standard requirements.

Assistant Executive Engineer
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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-02-27-01 Date: 01-03-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-02-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : AMCO Layout
Date of test : 27-02-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.6%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.6%	
Combined Flakiness and Elongation Index for WMM	24.2%	

* The results obtained are satisfactory as per standard requirements.

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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-03-29-01 Date: 20-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-11-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 3rd Cross Road - AMCO Layout
Date of test : 18-11-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	

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Lab ID : CP-RW-2023-03-29-01

Date: 20-11-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	24	24	5.1	94.9	90-100
9.5	50	74	15.6	84.4	70-88
4.75	120	194	40.8	59.2	53-71
2.36	55	249	52.4	47.6	42-58
1.18	45	294	61.9	38.1	34-48
0.6	40	334	70.3	29.7	26-38
0.3	34	368	77.5	22.5	18-28
0.15	36	404	85.1	14.9	12-20
0.075	45	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	30	30	6.3	93.7	90-100
9.5	76	106	22.3	77.7	70-88
4.75	101	207	43.6	56.4	53-71
2.36	42	249	52.5	47.5	42-58
1.18	40	289	60.9	39.1	34-48
0.6	45	334	70.4	29.6	26-38
0.3	36	370	78.0	22.0	18-28
0.15	30	400	84.3	15.7	12-20
0.075	50	450	94.8	5.2	4-10

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-11-18-01 Date: 20-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-11-23
Type of Mix : Tack coat
Date of test : 18-11-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.802	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.022	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.244	0.222
7	Average	Kg/sq.m	0.233	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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**NAME OF THE WORK: PACKAGE NO.03
(CONSISTS OF 5 WORKS)**

Third and Final Bill

Quality Control Reports

BOOK NO – 03

**QC ABSTRACT****NAME OF WORK:** Package No-03 (Consists of 5 works)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
Materials						
1	Cement	Fineness by dry sieving	One Test		1	1
		Fineness by Air permeability method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
2	Coarse aggregate(40 mm down size)	Compressive Strength	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
3	Coarse aggregate(20 mm down size)	Water Absorption	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
4	Fine aggregate	Water Absorption	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
		Bend test	One Test		1	1
		Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
5	Steel	ReBend test	One Test		1	1
		Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
6	Precast (100mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
7	Precast (230mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1

AE-12

AEE (WAP) CD



8	RCC(M20)	Compressive Strength(7days and 28days)	8 Sets		16	16
9	Cement Concrete Pavemet (M30)	Compressive Strength(7days and 28days)	11 Sets		22	22
10	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
11	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
12	BC	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
13	BITUMEN	Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
		Fire Point	One Test		1	1
14	TACK COAT	Rate of spread	One Test		1	1

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2023-01-04-01 Date: 06-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-01-23
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988
IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability
IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11, (RA 2019) DETERMINATION OF DENSITY , Clause 6

Date of test : 04-01-23
Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	2.1	—
2	Finess by Air permeablity method (m ² /kg,Min)	284.5	225m ² /kg, Min
3	Density (gm/cc)	3.13	—
4	Standard Consistency (%)	28%	Not specified
5	Initial Setting time	155 minutes	Not less than 30 minutes
6	Final Setting time	260 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	2mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2023-01-04-01 Date: 01-02-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-01-23
Sample Type : JSW 53grade
Reference to BIS codes : IS 269:2015 Ordinary Portland cement Specification ,
IS 4031 (Part 4,5):1988 , IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard
Cement Paste, Clause 5
IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6
Date of test : 04-01-23
Environmental Conditions during test : Temperature: 26°C
Humidity: 72%

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	3 Days	28.5N/mm ²	Not less than 27 N/mm ²
2	7 Days	39.0N/mm ²	Not less than 37 N/mm ²
3	28 Days	58.5N/mm ²	Not less than 53 N/mm ²

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2023-01-04-01 Date: 07-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-01-23
Sample Type : 40mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 04-01-23

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	214	214	1.4	98.6	90-100
3	20 mm	7254	7468	49.8	50.2	30-70
4	10 mm	4442	11910	79.4	20.6	10-35
5	4.75 mm	2685	14595	97.3	2.7	0-5
6	Pan	405	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2023-01-04-01

Date: 07-01-23

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	10.6	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.3	
3	Specific Gravity	2.64	—
4	Bulk Density(Loose) (Kg/l)	1.49	—
5	Bulk Density(Compacted) (Kg/l)	1.52	—
6	Water Absorption(%)	0.17	—

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2023-01-04-01 Date: 06-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-01-23
Sample Type/ Size : 20mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 04-01-23

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	237	237	4.7	95.3	90-100
3	10 mm	2544	2781	55.6	44.4	25-55
4	4.75 mm	2107	4888	97.8	2.2	0-10
5	Pan	112	5000	100	0	-

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2023-01-04-01

Date: 06-01-23

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	10.7	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.4	
3	Specific Gravity	2.65	—
4	Bulk Density(Loose) (Kg/l)	1.53	—
5	Bulk Density(Compacted) (Kg/l)	1.57	—
6	Water Absorption(%)	0.19	—
7	Aggregate crushing Value(%)	25.6	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	22.5	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

* The results obtained are satisfactory as per standard requirements.



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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2023-01-04-01 Date: 06-01-23

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 04-01-23

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption

Date of test : 04-01-23

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	22	22	2.2	97.8	90-100	90-100	90-100	95-100
3	2.36 mm	45	67	6.7	93.3	60-95	75-100	85-100	95-100
4	1.18 mm	242	309	30.9	69.1	30-70	55-90	75-100	90-100
5	600 micron	201	510	51.0	49.0	15-34	35-59	60-79	80-100
6	300 micron	208	718	71.8	28.2	5-20	8-30	12-40	15-50
7	150 micron	195	913	91.3	8.7	0-10	0-10	0-10	0-15
8	Pan	87	1000	100.0	0.0	---	---	---	---

Result : The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2023-01-04-01

Date: 06-01-23

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.7	—
2	Specific Gravity	2.50	—
3	Material finer than 75 micron(%)	8.7	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF STEEL

Lab ID : CP-2023-01-04-01 Date: 06-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 04-01-23
Sample Type : A-one Gold
Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.
Date of test: : 04-01-23

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm ²)	(N/mm ²)	(%)		
1	A-one Gold	Fe550	8	0.391	561	657	20.0%	Satisfactory	Satisfactory
2	A-one Gold	Fe550	10	0.616	566	664	20.0%	Satisfactory	Satisfactory
3	A-one Gold	Fe550	12	0.888	573	670	20.0%	Satisfactory	Satisfactory

* The results obtained are satisfactory as per standard requirements.

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Spectro Chemical Analysis, Physical, Non Destructive All Type of Metal Testing

Lab ID : CP-2023-01-04-01 Date: 06-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-01-23
Sample Type / Grade : A-one Gold
Date of test : 04-01-23

CHEMICAL ANALYSIS

Sl. No.	Chemical Contents	8mm	10mm	12mm	Max. Limits as per IS:1786-2008, Gr. Fe 550
1	Carbon (C) %	0.142	0.131	0.14	0.300 Max
2	Phosphor (P) %	0.031	0.046	0.040	0.050 Max
3	Sulphur (S) %	0.036	0.042	0.041	0.055 Max
4	Sulphur & Phosphorus %	0.083	0.056	0.075	0.100 Max

Note : The above material confirms to ASI S S 304 with respect to elements analysed

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2023-01-04-01 Date: 09-01-23

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 04-01-23

Sample Type /Size : Precast Cover Slab - 100mm Thick

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete

Date of test : 04/01/2023

Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.42	100.48	1.116	4707	99.7	21.2	19.7	24.6
2	Cover Slab-2	77.63	100.52	1.122	4732	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.51	100.51	1.118	4718	101.5	21.5	20.0	25.0

The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2023-01-04-01 Date: 09-01-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-01-23
Sample Type /Size : Precast Cover Slab - 230mm Thick
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test : 04/01/2023
Grade of Slab : M20

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	77.36	230.15	2.115	4699	100.6	21.4	19.9	24.9
2	Cover Slab-2	77.55	230.45	2.131	4722	105.3	22.3	20.7	25.9
3	Cover Slab-3	77.42	230.68	2.110	4707	99.0	21.0	19.6	24.4

The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-16-01 Date: 20/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-01-23
Customer ID : Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 20/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	13/01/2023	20/01/2023	150.33 X 151.35 X 151.89	22752	8.355	418.2	18.4	18.3
2	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	13/01/2023	20/01/2023	151.45 X 151.59 X 149.02	22958	8.770	413.9	18.0	
3	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	13/01/2023	20/01/2023	151.41 X 150.10 X 149.97	22726	8.662	421.3	18.5	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-16-01 Date: 10/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-01-23
Customer ID : Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 10/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	13/01/2023	10/02/2023	149.59 X 150.11 X 150.40	22455	8.586	516.5	23.0	23.1
2	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	13/01/2023	10/02/2023	149.58 X 149.49 X 151.51	22361	8.991	513.5	23.0	
3	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	13/01/2023	10/02/2023	150.75 X 151.71 X 151.40	22870	8.278	534.7	23.4	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-18-01 Date: 24/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-01-23
Customer ID : Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 24/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Vidyaranyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	17/01/2023	24/01/2023	150.06 X	22631	8.842	422.3	18.7	18.6
					150.81 X					
					150.46					
2	Drain Side Wall Concrete - Vidyaranyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	17/01/2023	24/01/2023	149.44 X	22393	8.618	412.1	18.4	
					149.85 X					
					149.25					
3	Drain Side Wall Concrete - Vidyaranyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	17/01/2023	24/01/2023	149.01 X	22567	8.692	422.6	18.7	
					151.44 X					
					150.36					

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-18-01 Date: 14/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises. No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-01-23
Customer ID : Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 14/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	17/01/2023	14/02/2023	149.91 X 150.79 X 151.86	22605	8.295	535.9	23.7	23.3
2	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	17/01/2023	14/02/2023	151.59 X 149.59 X 149.53	22677	8.146	512.3	22.6	
3	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	17/01/2023	14/02/2023	151.80 X 149.98 X 149.01	22767	8.864	537.2	23.6	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-20-01 Date: 26/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-01-23
Customer ID : Culvert Bottom Raft Concrete -Vidyananyapura, BEL 2nd Block
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete C1.5
Date of test : 26/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Vidyananyapura, BEL 2nd Block	M20	19/01/2023	26/01/2023	150.61 X	22695	8.409	420.2	18.5	18.6
					150.69 X					
					151.75					
2	Culvert Bottom Raft Concrete - Vidyananyapura, BEL 2nd Block	M20	19/01/2023	26/01/2023	151.29 X	22546	8.458	418.3	18.6	
					149.03 X					
					151.30					
3	Culvert Bottom Raft Concrete - Vidyananyapura, BEL 2nd Block	M20	19/01/2023	26/01/2023	149.60 X	22661	8.556	422.7	18.7	
					151.48 X					
					150.34					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-20-01 Date: 16/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-01-23
Customer ID : Culvert Bottom Raft Concrete -Vidyanayapura, BEL 2nd Block
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 16/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Culvert Bottom Raft Concrete - Vidyanayapura, BEL 2nd Block	M20	19/01/2023	16/02/2023	150.97 X 151.35 X 149.25	22849	8.471	543.5	23.8	23.4
2	Culvert Bottom Raft Concrete - Vidyanayapura, BEL 2nd Block	M20	19/01/2023	16/02/2023	149.62 X 151.37 X 149.65	22648	8.435	516.8	22.8	
3	Culvert Bottom Raft Concrete - Vidyanayapura, BEL 2nd Block	M20	19/01/2023	16/02/2023	150.37 X 149.75 X 151.11	22518	8.597	534.0	23.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-20-01 Date: 26/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayana, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-01-23
Customer ID : Drain Bottom Raft Concrete - Vidyanarayana, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 26/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Vidyanarayana, BEL Road 2nd Block, 2nd Cross LHS	M20	19/01/2023	26/01/2023	150.91 X 149.04 X 150.17	22491	8.288	419.8	18.7	18.8
2	Drain Bottom Raft Concrete - Vidyanarayana, BEL Road 2nd Block, 2nd Cross LHS	M20	19/01/2023	26/01/2023	149.15 X 149.74 X 149.79	22333	8.601	423.3	19.0	
3	Drain Bottom Raft Concrete - Vidyanarayana, BEL Road 2nd Block, 2nd Cross LHS	M20	19/01/2023	26/01/2023	149.07 X 150.62 X 149.07	22454	8.418	423.2	18.8	

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Lab ID : CP-2023-01-20-01 Date: 16/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-01-23
Customer ID : Drain Bottom Raft Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 16/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Vidyaranyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	19/01/2023	16/02/2023	149.40 X	22316	8.518	530.9	23.8	23.2
					149.38 X					
					151.19					
2	Drain Bottom Raft Concrete - Vidyaranyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	19/01/2023	16/02/2023	149.76 X	22609	8.848	497.6	22.0	
					150.97 X					
					150.97					
3	Drain Bottom Raft Concrete - Vidyaranyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	19/01/2023	16/02/2023	151.62 X	22848	8.717	542.9	23.8	
					150.69 X					
					150.36					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-23-01 Date: 28/01/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 23-01-23
Customer ID : Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 28/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	28/01/2023	151.42 X 150.42 X 150.70	22776	8.854	426.7	18.7	18.4
2	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	28/01/2023	150.96 X 150.76 X 151.67	22759	8.417	417.9	18.4	
3	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	28/01/2023	150.57 X 149.02 X 150.70	22437	8.304	408.2	18.2	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-23-01 Date: 20/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 23-01-23
Customer ID : Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 18/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	18/02/2023	150.31 X	22568	8.476	525.9	23.3	22.9
					150.14 X					
					150.18					
2	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	18/02/2023	150.32 X	22656	8.640	507.1	22.4	22.9
					150.73 X					
					149.34					
3	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	18/02/2023	150.36 X	22630	8.616	523.4	23.1	22.9
					150.51 X					
					149.28					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-23-01 Date: 28/01/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanayapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 23-01-23

Customer ID : Drain Side Wall Concrete - Vidyanayapura, BEL Road 2nd Block, 2nd Cross LHS

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 28/01/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Vidyanayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	28/01/2023	151.85 X 149.18 X 149.52		8.406	418.4	19.0	18.8
2	Drain Side Wall Concrete - Vidyanayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	28/01/2023	149.59 X 149.38 X 150.65		8.816	403.7	18.8	
3	Drain Side Wall Concrete - Vidyanayapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	28/01/2023	149.13 X 149.58 X 149.82		8.837	410.6	18.7	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-23-01 Date: 20/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 23-01-23
Customer ID : Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 18/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	18/02/2023	149.94 X	22757	8.270	531.9	23.4	23.0
					151.78 X					
					150.34					
2	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	18/02/2023	151.27 X	22584	8.501	501.2	22.2	23.0
					149.30 X					
					151.55					
3	Drain Side Wall Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross LHS	M20	21/01/2023	18/02/2023	150.93 X	22899	8.133	539.2	23.5	23.0
					151.71 X					
					150.57					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 01/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-01-23
Customer ID : Drain Bottom Raft Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross RHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 01/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	01/02/2023	149.47 X 150.26 X 149.08	22459	8.324	412.8	18.4	18.7
2	Drain Bottom Raft Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	01/02/2023	149.82 X 151.76 X 149.64	22737	8.669	426.3	18.8	
3	Drain Bottom Raft Concrete - Vidyananyapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	01/02/2023	151.89 X 150.34 X 150.90	22835	8.994	431.2	18.9	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 22/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-01-23
Customer ID : Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 22/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	22/02/2023	150.18 X 149.91 X 151.59	22513	8.872	534.7	23.8	23.1
2	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	22/02/2023	149.87 X 151.54 X 149.20	22711	8.650	502.5	22.1	
3	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	22/02/2023	151.26 X 149.37 X 151.68	22594	8.498	529.9	23.5	

* The results obtained are satisfactory as per standard requirements.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 01/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-01-23
Customer ID : Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 01/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	01/02/2023	151.60 X 149.83 X 150.40	22714	8.370	411.3	18.1	18.5
2	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	01/02/2023	151.54 X 149.68 X 151.88	22682	8.222	429.8	18.9	
3	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	01/02/2023	149.27 X 149.07 X 150.23	22252	8.363	409.4	18.4	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 22/02/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-01-23
Customer ID : Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M20 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 22/02/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	22/02/2023	151.76 X	22847	8.804	530.1	23.8	23.3
					150.55 X					
					149.43					
2	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	22/02/2023	150.73 X	22621	8.932	509.8	22.4	23.3
					150.07 X					
					151.18					
3	Drain Bottom Raft Concrete - Vidyanarayapura, BEL Road 2nd Block, 2nd Cross RHS	M20	25/01/2023	22/02/2023	151.05 X	22768	8.703	529.0	23.9	23.3
					150.73 X					
					149.40					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 02/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-05-23
Customer ID : Cement Concrete Pavement - RC Pura Road- Munikempanna Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete C1.5
Date of test : 02/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.77 X 150.29 X 150.25	22659	8.700	487.8	22.0	21.7
2	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.45 X 150.65 X 150.75	22665	8.865	490.4	21.9	
3	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.85 X 150.04 X 150.24	22633	8.572	496.2	21.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 23/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-05-23
Customer ID : Cement Concrete Pavement - RC Pura Road- Munikempanna Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 23/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.88 X	22634	8.930	784.6	34.2	34.6
					150.01 X					
					150.13					
2	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.14 X	22623	8.626	779.9	34.8	
					150.68 X					
					150.74					
3	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.60 X	22623	8.666	779.3	34.9	
					150.22 X					
					150.12					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 02/06/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 27-05-23

Customer ID : Cement Concrete Pavement - RC Pura Road- Munikempanna Layout

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M30 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 02/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.12 X	22553	8.703	489.0	22.0	21.6
					150.24 X					
					150.81					
2	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.34 X	22697	8.449	484.3	21.3	
					150.97 X					
					150.14					
3	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.91 X	22696	8.574	479.8	21.6	
					150.39 X					
					150.95					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 23/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-05-23
Customer ID : Cement Concrete Pavement - RC Pura Road- Munikempanna Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 23/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.48 X	22671	8.854	783.5	34.2	34.5
					150.66 X					
					150.72					
2	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.66 X	22669	8.479	789.8	34.9	
					150.46 X					
					150.67					
3	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.13 X	22588	8.237	783.5	34.4	
					150.45 X					
					150.54					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 02/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-05-23
Customer ID : Cement Concrete Pavement - RC Pura Road- Munikempanna Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 02/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.04 X	22632	8.220	495.6	21.6	21.6
					150.84 X					
					150.05					
2	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.44 X	22574	8.833	481.4	21.6	
					150.05 X					
					150.84					
3	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	02/06/2023	150.75 X	22728	8.898	494.4	21.7	
					150.77 X					
					150.53					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-01-27-01 Date: 23/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 27-05-23
Customer ID : Cement Concrete Pavement - RC Pura Road- Munikempanna Layout
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 23/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.25 X	22545	8.328	788.2	34.5	34.6
					150.05 X					
					150.66					
2	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.22 X	22572	8.665	768.5	34.7	
					150.26 X					
					150.62					
3	Cement Concrete Pavement - RC Pura Road- Munikempanna Layout	M30	26/05/2023	23/06/2023	150.44 X	22713	8.802	781.0	34.7	
					150.97 X					
					150.81					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-29-01 Date: 03/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-05-23
Customer ID : Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 03/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.93 X	22753	8.450	492.8	21.7	21.7
					150.75 X					
					150.52					
2	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.11 X	22588	8.360	489.0	21.7	
					150.47 X					
					150.65					
3	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.15 X	22624	8.259	495.7	21.9	
					150.68 X					
					150.62					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-29-01 Date: 24/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-05-23
Customer ID : Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 24/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.92 X	22716	8.771	774.7	34.5	34.5
					150.52 X					
					150.04					
2	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.69 X	22639	8.546	787.1	34.4	
					150.24 X					
					150.94					
3	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.48 X	22598	8.329	776.4	34.4	
					150.18 X					
					150.70					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-29-01 Date: 03/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-05-23
Customer ID : Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 03/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.33 X 150.05 X 151.00	22557	8.805	475.6	21.6	
2	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.11 X 150.74 X 150.72	22628	8.120	479.8	21.3	21.6
3	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.54 X 150.81 X 150.72	22702	8.469	481.2	21.9	

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-29-01 Date: 24/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-05-23
Customer ID : Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 24/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.23 X	22684	8.256	780.0	34.5	34.5
					150.99 X					
					150.98					
2	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.98 X	22665	8.644	778.1	34.5	
					150.12 X					
					150.86					
3	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.62 X	22673	8.180	774.7	34.7	
					150.53 X					
					150.47					

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TEST REPORT OF CEMENT CONCRETE CUBES

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Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-05-23
Customer ID : Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 03/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.01 X	22563	8.261	490.4	21.1	21.2
					150.41 X					
					150.35					
2	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.97 X	22749	8.128	498.7	21.6	
					150.68 X					
					150.18					
3	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.50 X	22580	8.582	485.3	21.1	
					150.04 X					
					150.88					

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Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-05-23
Customer ID : Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 24/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.86 X	22751	8.988	777.4	34.5	34.5
					150.81 X					
					150.74					
2	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.85 X	22747	8.238	778.2	34.7	
					150.79 X					
					150.24					
3	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.45 X	22592	8.511	789.2	34.2	
					150.16 X					
					150.80					

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Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-05-23
Customer ID : Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 03/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.36 X 150.96 X 150.84	22698	8.792	483.6	21.7	21.6
2	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.99 X 150.19 X 150.05	22677	8.668	492.1	21.2	
3	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	03/06/2023	150.52 X 150.04 X 150.20	22583	8.815	482.3	22.0	

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Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 29-05-23
Customer ID : Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 24/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.77 X	22717	8.805	792.0	34.9	34.6
					150.67 X					
					150.91					
2	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.85 X	22778	8.360	785.1	34.4	
					150.99 X					
					150.35					
3	Cement Concrete Pavement - Patil Gopalappa Layout, 7th Cross Road	M30	27/05/2023	24/06/2023	150.74 X	22645	8.405	775.9	34.4	
					150.22 X					
					150.87					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-31-01 Date: 05/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-05-23
Customer ID : Cement Concrete Pavement - Yalagamma Layout, 6th C Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 05/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.45 X	22716	8.581	487.5	21.1	21.3
					150.99 X					
					150.41					
2	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.27 X	22637	8.457	483.8	21.7	
					150.64 X					
					150.74					
3	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.03 X	22543	8.612	485.2	21.1	
					150.26 X					
					150.17					

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-31-01 Date: 26/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 31-05-23
Customer ID : Cement Concrete Pavement - Yalagamma Layout, 6th C Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 26/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.75 X	22723	8.512	779.4	34.7	34.5
					150.74 X					
					150.75					
2	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.29 X	22661	8.699	772.6	34.4	
					150.78 X					
					150.14					
3	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.44 X	22618	8.673	787.2	34.2	
					150.35 X					
					150.16					

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Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-05-23
Customer ID : Cement Concrete Pavement - Yalagamma Layout, 6th C Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 05/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.50 X	22616	8.558	494.1	21.5	21.5
					150.27 X					
					150.37					
2	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.86 X	22690	8.694	495.0	21.4	
					150.40 X					
					150.32					
3	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.72 X	22735	8.826	490.4	21.5	
					150.84 X					
					150.14					

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Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-05-23
Customer ID : Cement Concrete Pavement - Yalagamma Layout, 6th C Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 26/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.10 X	22663	8.428	790.7	34.9	34.5
					150.99 X					
					150.61					
2	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.84 X	22666	8.114	772.8	34.4	
					150.27 X					
					150.30					
3	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.83 X	22724	8.745	782.7	34.3	
					150.67 X					
					150.69					

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Lab ID : CP-2023-05-31-01 Date: 05/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-05-23
Customer ID : Cement Concrete Pavement - Yalagamma Layout, 6th C Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 7 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 05/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.06 X	22627	8.776	496.9	21.7	21.9
					150.79 X					
					150.10					
2	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.73 X	22728	8.949	498.4	22.0	
					150.79 X					
					150.11					
3	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.30 X	22574	8.563	494.6	22.0	
					150.20 X					
					150.96					

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-31-01 Date: 26/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-05-23
Customer ID : Cement Concrete Pavement - Yalagamma Layout, 6th C Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 26/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.02 X	22526	8.106	778.3	34.6	34.5
					150.16 X					
					150.31					
2	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.80 X	22641	8.452	770.7	34.1	
					150.14 X					
					150.52					
3	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.58 X	22718	8.268	787.0	34.6	
					150.87 X					
					150.54					

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-31-01 Date: 05/06/2023

Project Name : Package No-03 (Consists of 5 works)

Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097

Customer's Reference : BBMP/EE/BTP/WO/78/2022-23

Date of Receipt : 31-05-23

Customer ID : Cement Concrete Pavement - Yalagamma Layout, 6th C Cross

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M30 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen		Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)		(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.49	X	22595	8.287	485.3	21.2	21.2
					150.15	X					
					150.88						
2	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.01	X	22649	8.451	494.9	21.1	
					150.98	X					
					150.97						
3	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	05/06/2023	150.26	X	22575	8.822	485.7	21.1	
					150.24	X					
					150.16						

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2023-05-31-01 Date: 26/06/2023
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 31-05-23
Customer ID : Cement Concrete Pavement - Yalagamma Layout, 6th C Cross
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M30 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test : 26/06/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.30 X	22595	8.246	790.5	34.4	34.6
					150.33 X					
					150.38					
2	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.36 X	22600	8.288	775.6	35.0	
					150.31 X					
					150.24					
3	Cement Concrete Pavement - Yalagamma Layout, 6th C Cross	M30	29/05/2023	26/06/2023	150.90 X	22741	8.576	791.7	34.4	
					150.71 X					
					150.43					

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Ramanna garden
Date of test : 01-04-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	221	221	2.0	98.0	95-100
22.4	2475	2696	24.5	75.5	60-80
11.2	2345	5041	45.8	54.2	40-60
4.75	2013	7054	64.1	35.9	25-40
2.36	1147	8201	74.6	25.4	15-30
0.6	1065	9266	84.2	15.8	8-22
0.075	1268	10534	95.8	4.2	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Ramanna garden
Date of test : 01-04-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.5	302.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	77.5	74.6
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.4
5	Aggregate impact value	(B/A)*100	25.6	24.7
6	Aggregate impact value (Mean of two tests)	Percentage	25.1	

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Ramanna garden
Date of test : 01-04-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.3%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.7%	
Combined Flakiness and Elongation Index for WMM	25.0%	

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Bloom Moon Garden
Date of test : 01-04-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	258	258	2.3	97.7	95-100
22.4	2398	2656	24.1	75.9	60-80
11.2	2178	4834	43.9	56.1	40-60
4.75	2248	7082	64.4	35.6	25-40
2.36	1285	8367	76.1	23.9	15-30
0.6	1265	9632	87.6	12.4	8-22
0.075	958	10590	96.3	3.7	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Bloom Moon Garden
Date of test : 01-04-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.5	301.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	76.1	73.4
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.6
5	Aggregate impact value	(B/A)*100	25.2	24.3
6	Aggregate impact value (Mean of two tests)	Percentage	24.8	

* The results obtained are satisfactory as per standard requirements.

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**DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF
COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007)**

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Bloom Moon Garden
Date of test : 01-04-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.1%	
Combined Flakiness and Elongation Index for WMM	24.9%	

* The results obtained are satisfactory as per standard requirements.

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**TEST RESULTS OF GRADATION FOR WMM**

Lab ID : CP-RW-2023-04-03-01 Date: 05-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 03-04-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Bloom Field Garden
Date of test : 03-04-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	302	302	2.7	97.3	95-100
22.4	2475	2777	25.2	74.8	60-80
11.2	2745	5522	50.2	49.8	40-60
4.75	2145	7667	69.7	30.3	25-40
2.36	1258	8925	81.1	18.9	15-30
0.6	987	9912	90.1	9.9	8-22
0.075	898	10810	98.3	1.7	0-5

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-04-03-01 Date: 05-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 03-04-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Bloom Field Garden
Date of test : 03-04-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.5	301.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	76.2	73.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.5	0.2
5	Aggregate impact value	(B/A)*100	25.3	24.5
6	Aggregate impact value (Mean of two tests)	Percentage	24.9	

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2023-04-03-01 Date: 05-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 03-04-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Bloom Field Garden
Date of test : 03-04-23

Result:

Index	Percentage of Flakiness and Elongation Index	Specified limits as per MORTH specification table 400-12
Flakiness Index	11.9%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.3%	
Combined Flakiness and Elongation Index for WMM	24.2%	

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-04-04-01 Date: 06-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-04-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : BEL Layout
Date of test : 04-04-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	201	201	1.8	98.2	95-100
22.4	2399	2600	23.6	76.4	60-80
11.2	2185	4785	43.5	56.5	40-60
4.75	1988	6773	61.6	38.4	25-40
2.36	1658	8431	76.6	23.4	15-30
0.6	1495	9926	90.2	9.8	8-22
0.075	745	10671	97.0	3.0	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-04-04-01 Date: 06-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-04-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : BEL Layout
Date of test : 04-04-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.2	302.9
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	77.3	74.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.1	0.6
5	Aggregate impact value	(B/A)*100	25.6	24.7
6	Aggregate impact value (Mean of two tests)	Percentage	25.1	

* The results obtained are satisfactory as per standard requirements.

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**DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF
COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))**

Lab ID : CP-RW-2023-04-04-01 Date: 06-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 04-04-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : BEL Layout
Date of test : 04-04-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.6%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.6%	
Combined Flakiness and Elongation Index for WMM	24.2%	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT ON BITUMEN

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of test : 01-04-23

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	61	Min 45
2	Softening Point, °C	50.8	Min. 47°C
3	Ductility, cm	100	Min. 47 cm
4	Flash point, °C	310	Min. 220°C
	Fire point, °C	322	

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : DBM-Plant (Dense Bituminous Macadam)
Date of test : 01-04-23
Weight of Sample : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	250	250	5.00	95.00	90-100
19	350	600	12.00	88.00	71-95
13.2	450	1050	21.00	79.00	56-80
4.75	1750	2800	56.00	44.00	38-54
2.36	400	3200	64.00	36.00	28-42
0.3	1350	4550	91.00	9.00	7-21
0.075	250	4800	96.00	4.00	2-8
PAN	200	5000	0.00	0	0

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID : CP-RW-2023-04-01-01 Date: 04-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Date of test : 01-04-23

Table 500-6 : Physical Requirements for Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	13.0	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	10.0		
Strength	Aggregate Impact Value	18.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

The results obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-04-01-01 Date: 04-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : DBM (Dense Bituminous Mecadam)
Date of test : 01-04-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	—

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-04-01-01 Date: 04-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : DBM(Dense Bitumnous Macadam)
Date of test : 01-04-23
Type of Binder : 60/70
% of Binder Used : 4.5%
Weight of Aggregate : 200.0 gm
Weight of Binder : 9 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2023-04-01-01 Date: 03-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 01-04-23
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2023-04-01-01 Date: 05-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-04-23

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-04-01-01 Date: 05-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : BC(Bitumenous Concrete)
Date of test : 01-04-23

Type of Binder : 60/70
% of Binder Used : 5.4%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.8 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-04-01-01 Date: 05-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 01-04-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 01-04-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	—

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-04-10-01 Date: 11-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 10-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Ramanna Garden 1st main
Date of test : 10-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5 = W4 - W3$	2	2
6	Bitumen percentage	$\frac{W1 - W2 + W5}{W1} \times 100$	4.6	4.50
7	Average percentage	%	4.55	

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Lab ID : CP-RW-2023-04-10-01

Date: 11-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	14	14.4	3.01	97.0	90-100
19	24	38.4	8.02	92.0	71-95
13.2	120	158.4	33.07	66.9	56-80
4.75	96	254.4	53.11	46.9	38-54
2.36	80	334.4	69.81	30.2	28-42
0.3	62	396.8	82.84	17.2	7-21
0.075	53	449.6	93.86	6.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0	100.0	100
26.5	15	14.8	3.09	96.9	90-100
19	24	38.8	8.09	91.9	71-95
13.2	120	158.8	33.12	66.9	56-80
4.75	96	254.8	53.14	46.9	38-54
2.36	78	332.8	69.41	30.6	28-42
0.3	62	395.2	82.42	17.6	7-21
0.075	53	448	93.43	6.6	2-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-04-11-01 Date: 12-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 11-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Bloom Moon Garden
Date of test : 11-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5 = W4 - W3$	2	2
6	Bitumen percentage	$\frac{W1 - W2 + W5}{W1} \times 100$	4.50	4.50
7	Average percentage	%	4.50	

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Lab ID : CP-RW-2023-04-11-01

Date: 12-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	32	32	6.67	93.3	90-100
19	46	78	16.27	83.7	71-95
13.2	116	194	40.46	59.5	56-80
4.75	76	270	56.31	43.7	38-54
2.36	38	308	64.23	35.8	28-42
0.3	76	384	80.08	19.9	7-21
0.075	59	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	26	26	5.42	94.6	90-100
19	32	58	12.10	87.9	71-95
13.2	145	203	42.34	57.7	56-80
4.75	78	281	58.60	41.4	38-54
2.36	32	313	65.28	34.7	28-42
0.3	69	382	79.67	20.3	7-21
0.075	71	453	94.47	5.5	2-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-04-12-01 Date: 13-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 12-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Bloom Filed garden main road
Date of test : 12-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.70	4.50
7	Average percentage	%	4.60	

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Lab ID : CP-RW-2023-04-12-01

Date: 13-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	33	33	6.90	93.1	90-100
19	45	78	16.30	83.7	71-95
13.2	112	190	39.71	60.3	56-80
4.75	79	269	56.22	43.8	38-54
2.36	40	309	64.58	35.4	28-42
0.3	73	382	79.83	20.2	7-21
0.075	63	445	93.00	7.0	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	28	28	5.84	94.2	90-100
19	34	62	12.93	87.1	71-95
13.2	148	210	43.80	56.2	56-80
4.75	80	290	60.48	39.5	38-54
2.36	35	325	67.78	32.2	28-42
0.3	70	395	82.38	17.6	7-21
0.075	66	461	96.14	3.9	2-8

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-04-17-01 Date: 18-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Najappa layout 8th A Cross Road
Date of test : 17-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5 = W4 - W3$	2	2
6	Bitumen percentage	$\frac{W1 - W2 + W5}{W1} \times 100$	4.50	4.60
7	Average percentage	%	4.55	

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Lab ID : CP-RW-2023-04-17-01

Date: 18-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	36	36	7.51	92.5	90-100
19	40	76	15.85	84.2	71-95
13.2	108	184	38.37	61.6	56-80
4.75	77	261	54.43	45.6	38-54
2.36	42	303	63.19	36.8	28-42
0.3	80	383	79.87	20.1	7-21
0.075	60	443	92.39	7.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	30	30	6.26	93.7	90-100
19	36	66	13.78	86.2	71-95
13.2	130	196	40.92	59.1	56-80
4.75	82	278	58.04	42.0	38-54
2.36	37	315	65.76	34.2	28-42
0.3	73	388	81.00	19.0	7-21
0.075	63	451	94.15	5.8	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-04-18-01 Date: 19-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Nanjappa layout 6th Cross
Date of test : 18-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	478
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5 = W4 - W3$	2	2
6	Bitumen percentage	$\frac{W1 - W2 + W5}{W1} \times 100$	4.70	4.80
7	Average percentage	%	4.75	

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Lab ID : CP-RW-2023-04-18-01

Date: 19-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	34	34	7.11	92.9	90-100
19	41	75	15.67	84.3	71-95
13.2	109	184	38.45	61.5	56-80
4.75	79	263	54.96	45.0	38-54
2.36	44	307	64.16	35.8	28-42
0.3	83	390	81.50	18.5	7-21
0.075	58	448	93.63	6.4	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 478

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	31	31	6.49	93.5	90-100
19	42	73	15.27	84.7	71-95
13.2	120	193	40.38	59.6	56-80
4.75	86	279	58.37	41.6	38-54
2.36	31	310	64.85	35.1	28-42
0.3	70	380	79.50	20.5	7-21
0.075	72	452	94.56	5.4	2-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-04-19-01 Date: 20-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 19-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : BEL layout, 2nd Cross
Date of test : 19-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5 = W4 - W3$	2	2
6	Bitumen percentage	$\frac{W1 - W2 + W5}{W1} \times 100$	4.50	4.60
7	Average percentage	%	4.55	

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Lab ID : CP-RW-2023-04-19-01

Date: 20-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	29	29	6.05	94.0	90-100
19	47	76	15.85	84.2	71-95
13.2	113	189	39.42	60.6	56-80
4.75	83	272	56.73	43.3	38-54
2.36	49	321	66.94	33.1	28-42
0.3	86	407	84.88	15.1	7-21
0.075	60	467	97.39	2.6	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	27	27	5.64	94.4	90-100
19	48	75	15.66	84.3	71-95
13.2	126	201	41.96	58.0	56-80
4.75	89	290	60.54	39.5	38-54
2.36	36	326	68.06	31.9	28-42
0.3	72	398	83.09	16.9	7-21
0.075	65	463	96.66	3.3	2-8

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2023-04-20-01 Date: 21-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-04-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : Bloom Moon garden, 1st main road
Date of test : 20-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5- W4- W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.60	4.60
7	Average percentage	%	4.60	

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Lab ID : CP-RW-2023-04-20-01

Date: 21-04-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	33	33	6.89	93.1	90-100
19	49	82	17.12	82.9	71-95
13.2	112	194	40.50	59.5	56-80
4.75	80	274	57.20	42.8	38-54
2.36	47	321	67.01	33.0	28-42
0.3	80	401	83.72	16.3	7-21
0.075	55	456	95.20	4.8	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	34	34	7.10	92.9	90-100
19	53	87	18.16	81.8	71-95
13.2	120	207	43.22	56.8	56-80
4.75	70	277	57.83	42.2	38-54
2.36	40	317	66.18	33.8	28-42
0.3	70	387	80.79	19.2	7-21
0.075	60	447	93.32	6.7	2-8

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-05-20-01 Date: 21-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 20-05-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : G.Ramaiah layout 1st Cross
Date of test : 20-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	478.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.70	4.60
7	Average percentage	%	4.65	

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Lab ID : CP-RW-2023-05-20-01

Date: 21-05-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	25	25	5.22	94.8	90-100
19	44	69	14.42	85.6	71-95
13.2	101	170	35.53	64.5	56-80
4.75	75	245	51.20	48.8	38-54
2.36	40	285	59.56	40.4	28-42
0.3	95	380	79.41	20.6	7-21
0.075	66	446	93.21	6.8	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	39	39	8.14	91.9	90-100
19	51	90	18.79	81.2	71-95
13.2	100	190	39.67	60.3	56-80
4.75	80	270	56.37	43.6	38-54
2.36	60	330	68.89	31.1	28-42
0.3	80	410	85.59	14.4	7-21
0.075	45	455	94.99	5.0	2-8

* The results obtained are satisfactory as per standard requirements.



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-04-25-01 Date: 26-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-04-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Ramanna garden , 2nd main
Date of test : 25-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.50
7	Average percentage	%	5.55	



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Lab ID : CP-RW-2023-04-25-01

Date: 26-04-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	32	32	6.8	93.2	90-100
9.5	45	77	16.2	83.8	70-88
4.75	123	200	42.2	57.8	53-71
2.36	62	262	55.3	44.7	42-58
1.18	38	300	63.3	36.7	34-48
0.6	22	322	67.9	32.1	26-38
0.3	48	370	78.1	21.9	18-28
0.15	38	408	86.1	13.9	12-20
0.075	28	436	92.0	8.0	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	36	36	7.6	92.4	90-100
9.5	49	85	17.9	82.1	70-88
4.75	96	181	38.1	61.9	53-71
2.36	69	250	52.7	47.3	42-58
1.18	53	303	63.9	36.1	34-48
0.6	25	328	69.1	30.9	26-38
0.3	49	377	79.5	20.5	18-28
0.15	20	397	83.7	16.3	12-20
0.075	40	437	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.



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AEE (VRP) SD

**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-04-25-01 Date: 26-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-04-23
Type of Mix : Tack coat
Date of test : 25-04-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-04-26-01 Date: 27-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya pura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 26-04-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Ramanna garden , 3rd Cross Road
Date of test : 26-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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AEE (VRP) SD



Lab ID : CP-RW-2023-04-26-01

Date: 27-04-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

: 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	26	26	5.5	94.5	90-100
9.5	57	83	17.5	82.5	70-88
4.75	125	208	43.9	56.1	53-71
2.36	46	254	53.6	46.4	42-58
1.18	43	297	62.7	37.3	34-48
0.6	33	330	69.6	30.4	26-38
0.3	40	370	78.1	21.9	18-28
0.15	31	401	84.6	15.4	12-20
0.075	38	439	92.6	7.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

: 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	30	30	6.3	93.7	90-100
9.5	70	100	21.1	78.9	70-88
4.75	116	216	45.5	54.5	53-71
2.36	50	266	56.0	44.0	42-58
1.18	39	305	64.2	35.8	34-48
0.6	32	337	70.9	29.1	26-38
0.3	40	377	79.4	20.6	18-28
0.15	33	410	86.3	13.7	12-20
0.075	34	444	93.5	6.5	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-04-26-01 Date: 27-04-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 26-04-23
Type of Mix : Tack coat
Date of test : 26-04-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-05-09-01 Date: 11-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Bloom Moon garden , 1st main road
Date of test : 09-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.50
7	Average percentage	%	5.45	



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Lab ID : CP-RW-2023-05-09-01

Date: 11-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	23	23	4.8	95.2	90-100
9.5	59	82	17.3	82.7	70-88
4.75	121	203	42.7	57.3	53-71
2.36	50	253	53.3	46.7	42-58
1.18	49	302	63.6	36.4	34-48
0.6	34	336	70.7	29.3	26-38
0.3	44	380	80.0	20.0	18-28
0.15	29	409	86.1	13.9	12-20
0.075	40	449	94.5	5.5	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	74	107	22.6	77.4	70-88
4.75	110	217	45.7	54.3	53-71
2.36	50	267	56.3	43.7	42-58
1.18	40	307	64.7	35.3	34-48
0.6	38	345	72.7	27.3	26-38
0.3	37	382	80.5	19.5	18-28
0.15	30	412	86.8	13.2	12-20
0.075	30	442	93.2	6.8	4-10

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-05-09-01 Date: 11-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 09-05-23
Type of Mix : Tack coat
Date of test : 09-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-05-11-01 Date: 12-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 11-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 4th cross, bloom field garden
Date of test : 11-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-05-11-01

Date: 12-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	12	12	2.5	97.5	90-100
9.5	52	64	13.5	86.5	70-88
4.75	141	205	43.2	56.8	53-71
2.36	46	251	53.0	47.0	42-58
1.18	39	290	61.2	38.8	34-48
0.6	15	305	64.3	35.7	26-38
0.3	46	351	74.1	25.9	18-28
0.15	45	396	83.5	16.5	12-20
0.075	39	435	91.8	8.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.0	44.0	42-58
1.18	29	295	62.1	37.9	34-48
0.6	11	306	64.4	35.6	26-38
0.3	46	352	74.1	25.9	18-28
0.15	45	397	83.6	16.4	12-20
0.075	35	432	90.9	9.1	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-05-11-01 Date: 12-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 11-05-23
Type of Mix : Tack coat
Date of test : 11-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-05-16-01 Date: 17-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya-pura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 4th main, BEL Layout
Date of test : 16-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	473.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.50	5.70
7	Average percentage	%	5.60	



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Lab ID : CP-RW-2023-05-16-01

Date: 17-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	21	21	4.4	95.6	90-100
9.5	47	68	14.3	85.7	70-88
4.75	139	207	43.6	56.4	53-71
2.36	41	248	52.3	47.7	42-58
1.18	34	282	59.4	40.6	34-48
0.6	20	302	63.6	36.4	26-38
0.3	41	343	72.3	27.7	18-28
0.15	40	383	80.7	19.3	12-20
0.075	53	436	91.9	8.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	10	10	2.1	97.9	90-100
9.5	69	79	16.7	83.3	70-88
4.75	116	195	41.2	58.8	53-71
2.36	60	255	53.9	46.1	42-58
1.18	35	290	61.2	38.8	34-48
0.6	16	306	64.6	35.4	26-38
0.3	42	348	73.5	26.5	18-28
0.15	43	391	82.6	17.4	12-20
0.075	45	436	92.1	7.9	4-10

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-05-16-01 Date: 17-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 16-05-23
Type of Mix : Tack coat
Date of test : 16-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat - (c)	Kg	0.804	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.256
7	Average	Kg/sq.m	0.261	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-05-17-01 Date: 18-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 8th A Cross, Nanjappa layout
Date of test : 17-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	473	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.80	5.60
7	Average percentage	%	5.70	



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Lab ID : CP-RW-2023-05-17-01

Date: 18-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 473

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	55	83	17.5	82.5	70-88
4.75	124	207	43.8	56.2	53-71
2.36	53	260	55.0	45.0	42-58
1.18	41	301	63.6	36.4	34-48
0.6	37	338	71.5	28.5	26-38
0.3	35	373	78.9	21.1	18-28
0.15	30	403	85.2	14.8	12-20
0.075	46	449	94.9	5.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	73	106	22.4	77.6	70-88
4.75	105	211	44.5	55.5	53-71
2.36	46	257	54.2	45.8	42-58
1.18	43	300	63.3	36.7	34-48
0.6	41	341	71.9	28.1	26-38
0.3	39	380	80.2	19.8	18-28
0.15	29	409	86.3	13.7	12-20
0.075	34	443	93.5	6.5	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-05-17-01 Date: 18-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 17-05-23
Type of Mix : Tack coat
Date of test : 17-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.805	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.025	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.278	0.256
7	Average	Kg/sq.m	0.267	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-05-18-01 Date: 19-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 7th Cross, Nanjappa layout
Date of test : 18-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-05-18-01

Date: 19-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	32	32	6.8	93.2	90-100
9.5	50	82	17.3	82.7	70-88
4.75	128	210	44.3	55.7	53-71
2.36	39	249	52.5	47.5	42-58
1.18	34	283	59.7	40.3	34-48
0.6	25	308	65.0	35.0	26-38
0.3	40	348	73.4	26.6	18-28
0.15	40	388	81.9	18.1	12-20
0.075	52	440	92.8	7.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	18	18	3.8	96.2	90-100
9.5	73	91	19.2	80.8	70-88
4.75	110	201	42.3	57.7	53-71
2.36	60	261	54.9	45.1	42-58
1.18	34	295	62.1	37.9	34-48
0.6	28	323	68.0	32.0	26-38
0.3	50	373	78.5	21.5	18-28
0.15	29	402	84.6	15.4	12-20
0.075	40	442	93.1	6.9	4-10

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-05-18-01 Date: 19-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 18-05-23
Type of Mix : Tack coat
Date of test : 18-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.805	0.772
5	Weight of tack Coat (d=c-b)	Kg	0.025	0.024
6	Rate of spread of tack coat	Kg/sq.m	0.278	0.267
7	Average	Kg/sq.m	0.272	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-05-19-01 Date: 20-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyaपुरa, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 19-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Main Road, Jai Ram layout
Date of test : 19-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	474.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.50
7	Average percentage	%	5.55	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-05-19-01

Date: 20-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	31	31	6.5	93.5	90-100
9.5	53	84	17.7	82.3	70-88
4.75	123	207	43.7	56.3	53-71
2.36	40	247	52.1	47.9	42-58
1.18	38	285	60.1	39.9	34-48
0.6	28	313	66.0	34.0	26-38
0.3	37	350	73.8	26.2	18-28
0.15	39	389	82.1	17.9	12-20
0.075	50	439	92.6	7.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	26	26	5.5	94.5	90-100
9.5	69	95	20.0	80.0	70-88
4.75	113	208	43.8	56.2	53-71
2.36	57	265	55.8	44.2	42-58
1.18	37	302	63.6	36.4	34-48
0.6	30	332	70.0	30.0	26-38
0.3	48	380	80.1	19.9	18-28
0.15	30	410	86.4	13.6	12-20
0.075	34	444	93.6	6.4	4-10

* The results obtained are satisfactory as per standard requirements.



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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES



DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-05-19-01 Date: 20-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 19-05-23
Type of Mix : Tack coat
Date of test : 19-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.805	0.769
5	Weight of tack Coat (d=c-b)	Kg	0.025	0.021
6	Rate of spread of tack coat	Kg/sq.m	0.278	0.233
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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AEE (VRP) SD



**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-05-23-01 Date: 24-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 23-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 6th Cross Road
Date of test : 23-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.60	5.40
7	Average percentage	%	5.50	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-05-23-01

Date: 24-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	28	28	5.9	94.1	90-100
9.5	57	85	17.9	82.1	70-88
4.75	124	209	44.1	55.9	53-71
2.36	50	259	54.6	45.4	42-58
1.18	46	305	64.3	35.7	34-48
0.6	31	336	70.9	29.1	26-38
0.3	35	371	78.3	21.7	18-28
0.15	33	404	85.2	14.8	12-20
0.075	46	450	94.9	5.1	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	34	34	7.2	92.8	90-100
9.5	78	112	23.6	76.4	70-88
4.75	101	213	44.8	55.2	53-71
2.36	46	259	54.5	45.5	42-58
1.18	32	291	61.3	38.7	34-48
0.6	42	333	70.1	29.9	26-38
0.3	44	377	79.4	20.6	18-28
0.15	36	413	86.9	13.1	12-20
0.075	32	445	93.7	6.3	4-10

* The results obtained are satisfactory as per standard requirements.

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WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES

**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-05-23-01 Date: 24-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 23-05-23
Type of Mix : Tack coat
Date of test : 23-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.769
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.021
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.233
7	Average	Kg/sq.m	0.244	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-05-24-01 Date: 25-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 24-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Nanjappa layout 17th cross road
Date of test : 24-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.50	5.40
7	Average percentage	%	5.45	



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Lab ID : CP-RW-2023-05-24-01

Date: 25-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	36	36	7.6	92.4	90-100
9.5	60	96	20.2	79.8	70-88
4.75	118	214	45.1	54.9	53-71
2.36	48	262	55.2	44.8	42-58
1.18	44	306	64.5	35.5	34-48
0.6	32	338	71.2	28.8	26-38
0.3	40	378	79.7	20.3	18-28
0.15	25	403	84.9	15.1	12-20
0.075	46	449	94.6	5.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	38	38	8.0	92.0	90-100
9.5	79	117	24.6	75.4	70-88
4.75	90	207	43.6	56.4	53-71
2.36	41	248	52.2	47.8	42-58
1.18	30	278	58.5	41.5	34-48
0.6	44	322	67.8	32.2	26-38
0.3	46	368	77.5	22.5	18-28
0.15	40	408	85.9	14.1	12-20
0.075	33	441	92.8	7.2	4-10

* The results obtained are satisfactory as per standard requirements.

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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-05-24-01 Date: 25-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 24-05-23
Type of Mix : Tack coat
Date of test : 24-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.804	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.024	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.267	0.256
7	Average	Kg/sq.m	0.261	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-05-25-01 Date: 26-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-05-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : Nanjappa layout 3rd Cross
Date of test : 25-05-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	473.5	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.70	5.60
7	Average percentage	%	5.65	



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2023-05-25-01

Date: 26-05-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm)

: 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	30	30	6.3	93.7	90-100
9.5	65	95	20.1	79.9	70-88
4.75	105	200	42.2	57.8	53-71
2.36	50	250	52.8	47.2	42-58
1.18	41	291	61.5	38.5	34-48
0.6	35	326	68.8	31.2	26-38
0.3	39	365	77.1	22.9	18-28
0.15	30	395	83.4	16.6	12-20
0.075	42	437	92.3	7.7	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm)

: 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	86	119	25.1	74.9	70-88
4.75	96	215	45.4	54.6	53-71
2.36	54	269	56.8	43.2	42-58
1.18	29	298	62.9	37.1	34-48
0.6	43	341	71.9	28.1	26-38
0.3	38	379	80.0	20.0	18-28
0.15	30	409	86.3	13.7	12-20
0.075	24	433	91.4	8.6	4-10

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-05-25-01 Date: 26-05-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 25-05-23
Type of Mix : Tack coat
Date of test : 25-05-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.8	0.769
5	Weight of tack Coat (d=c-b)	Kg	0.02	0.021
6	Rate of spread of tack coat	Kg/sq.m	0.222	0.233
7	Average	Kg/sq.m	0.228	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2023-11-15-01 Date: 17-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : WMM (Wet Mix Macadam)
Source of Sample : Nanjappa Layout
Date of test : 15-11-23
Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	198	198	1.8	98.2	95-100
22.4	2412	2610	23.7	76.3	60-80
11.2	2365	4975	45.2	54.8	40-60
4.75	1765	6740	61.3	38.7	25-40
2.36	1455	8195	74.5	25.5	15-30
0.6	1658	9853	89.6	10.4	8-22
0.075	798	10651	96.8	3.2	0-5

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGREGATE IMPACT VALUE

IS: 2386 Part IV

Lab ID : CP-RW-2023-11-15-01 Date: 17-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Nanjappa Layout
Date of test : 15-11-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.7	302.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	77.5	74.1
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	224.8	227.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.9
5	Aggregate impact value	(B/A)*100	25.6	24.5
6	Aggregate impact value (Mean of two tests)	Percentage	25.0	

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF
COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))**

Lab ID : CP-RW-2023-11-15-01 Date: 17-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Source of Sample : Nanjappa Layout
Date of test : 15-11-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.4%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.8%	
Combined Flakiness and Elongation Index for WMM	25.2%	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT ON BITUMEN

Lab ID : CP-RW-2023-11-15-01 Date: 17-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer's Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 15-11-23
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of test : 15-11-23

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	60	Min 45
2	Softening Point, °C	52.4	Min. 47°C
3	Ductility, cm	100	Min. 47 cm
4	Flash point, °C	313	Min. 220°C
	Fire point, °C	324	

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-11-15-01 Date: 19-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : DBM-Plant (Dense Bituminous Macadam)
Date of test : 15-11-23
Weight of Sample : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	252	252	5.04	94.96	90-100
19	353	605	12.10	87.90	71-95
13.2	455	1060	21.20	78.80	56-80
4.75	1752	2812	56.24	43.76	38-54
2.36	405	3217	64.34	35.66	28-42
0.3	1340	4557	91.14	8.86	7-21
0.075	210	4767	95.34	4.66	2-8
PAN	233	5000	0.00	0	0

* The results obtained are satisfactory as per standard requirements.

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID : CP-RW-2023-11-15-01 Date: 19-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : DBM (Dense Bituminous Macadam)
Date of test : 15-11-23

Table 500-6 : Physical Requirements fo Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	11.2	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	10.4		
Strength	Aggregate Impact Value	19.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

The results obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-11-15-01 Date: 19-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/VO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : DBM (Dense Bituminous Mecadam)
Date of test : 15-11-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	—

* The results obtained are satisfactory as per standard requirements.

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**TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE
(IS:6241)**

Lab ID : CP-RW-2023-11-15-01 Date: 19-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : DBM(Dense Bitumnous Macadam)
Date of test : 15-11-23

Type of Binder : 60/70
% of Binder Used : 4.5%
Weight of Aggregate : 200.0 gm
Weight of Binder : 9 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2023-11-15-01 Date: 17-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 15-11-23
Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : CP-RW-2023-11-15-01 Date: 18-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna
Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : BC(Bitumenous Concrete)
Date of test : 15-11-23

Type of Binder : 60/70
% of Binder Used : 5.4%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.8 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : CP-RW-2023-11-15-01 Date: 18-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 15-11-23

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES



TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2023-11-15-01 Date: 18-11-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 15-11-23
Type of Mix : BC (Bituminous Concrete)
Date of test : 15-11-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	—

* The results obtained are satisfactory as per standard requirements.



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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-12-22-01 Date: 23-12-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : 12th cross road Nanjappa Layout
Date of test : 22-12-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	479
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5 = W4 - W3$	2	2
6	Bitumen percentage	$\frac{W1 - W2 + W5}{W1} \times 100$	4.50	4.60
7	Average percentage	%	4.55	

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Lab ID : CP-RW-2023-12-22-01

Date: 23-12-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	30	30	6.26	93.7	90-100
19	48	78	16.27	83.7	71-95
13.2	105	183	38.16	61.8	56-80
4.75	70	253	52.76	47.2	38-54
2.36	42	295	61.52	38.5	28-42
0.3	98	393	81.96	18.0	7-21
0.075	72	465	96.98	3.0	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	31	31	6.47	93.5	90-100
19	52	83	17.33	82.7	71-95
13.2	98	181	37.79	62.2	56-80
4.75	88	269	56.16	43.8	38-54
2.36	62	331	69.10	30.9	28-42
0.3	70	401	83.72	16.3	7-21
0.075	50	451	94.15	5.8	2-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011))

Lab ID : CP-RW-2023-12-22-01 Date: 23-12-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-23
Type of Mix : DBM (Dense Bituminous Macadam)
Source of Sample : 11th cross road Nanjappa Layout
Date of test : 22-12-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479.5	478.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.50	4.70
7	Average percentage	%	4.60	

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Lab ID : CP-RW-2023-12-22-01

Date: 23-12-23

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH
37.5	0	0	0	100.0	100
26.5	34	34	7.09	92.9	90-100
19	46	80	16.68	83.3	71-95
13.2	108	188	39.21	60.8	56-80
4.75	69	257	53.60	46.4	38-54
2.36	46	303	63.19	36.8	28-42
0.3	95	398	83.00	17.0	7-21
0.075	60	458	95.52	4.5	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 478.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification
37.5	0	0	0	100.0	100
26.5	24	24	5.02	95.0	90-100
19	60	84	17.55	82.4	71-95
13.2	94	178	37.20	62.8	56-80
4.75	90	268	56.01	44.0	38-54
2.36	65	333	69.59	30.4	28-42
0.3	60	393	82.13	17.9	7-21
0.075	55	448	93.63	6.4	2-8

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2023-12-22-01 Date: 23-12-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 10th cross road Nanjappa Layout
Date of test : 22-12-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	473.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.50	5.70
7	Average percentage	%	5.60	



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Lab ID : CP-RW-2023-12-22-01

Date: 23-12-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	35	35	7.4	92.6	90-100
9.5	70	105	22.1	77.9	70-88
4.75	108	213	44.9	55.1	53-71
2.36	50	263	55.4	44.6	42-58
1.18	43	306	64.5	35.5	34-48
0.6	31	337	71.0	29.0	26-38
0.3	40	377	79.5	20.5	18-28
0.15	28	405	85.4	14.6	12-20
0.075	44	449	94.6	5.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	27	27	5.7	94.3	90-100
9.5	90	117	24.7	75.3	70-88
4.75	86	203	42.9	57.1	53-71
2.36	60	263	55.5	44.5	42-58
1.18	34	297	62.7	37.3	34-48
0.6	41	338	71.4	28.6	26-38
0.3	39	377	79.6	20.4	18-28
0.15	34	411	86.8	13.2	12-20
0.075	40	451	95.2	4.8	4-10

* The results obtained are satisfactory as per standard requirements.



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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-12-22-01 Date: 23-12-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-23
Type of Mix : Tack coat
Date of test : 22-12-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.805	0.772
5	Weight of tack Coat (d=c-b)	Kg	0.025	0.024
6	Rate of spread of tack coat	Kg/sq.m	0.278	0.267
7	Average	Kg/sq.m	0.272	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-12-22-01 Date: 23-12-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranya, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 2nd cross road Nanjappa Layout
Date of test : 22-12-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	473	473.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.80	5.70
7	Average percentage	%	5.75	



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Lab ID : CP-RW-2023-12-22-01

Date: 23-12-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 473

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	29	29	6.1	93.9	90-100
9.5	60	89	18.8	81.2	70-88
4.75	112	201	42.5	57.5	53-71
2.36	49	250	52.9	47.1	42-58
1.18	50	300	63.4	36.6	34-48
0.6	35	335	70.8	29.2	26-38
0.3	48	383	81.0	19.0	18-28
0.15	20	403	85.2	14.8	12-20
0.075	43	446	94.3	5.7	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	36	36	7.6	92.4	90-100
9.5	88	124	26.2	73.8	70-88
4.75	76	200	42.2	57.8	53-71
2.36	57	257	54.3	45.7	42-58
1.18	40	297	62.7	37.3	34-48
0.6	39	336	71.0	29.0	26-38
0.3	40	376	79.4	20.6	18-28
0.15	30	406	85.7	14.3	12-20
0.075	38	444	93.8	6.2	4-10

* The results obtained are satisfactory as per standard requirements.



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**DETERMINATION OF RATE OF SPREAD TACK COAT**

Lab ID : CP-RW-2023-12-22-01 Date: 23-12-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyanarayapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-23
Type of Mix : Tack coat
Date of test : 22-12-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.802	0.77
5	Weight of tack Coat (d=c-b)	Kg	0.022	0.022
6	Rate of spread of tack coat	Kg/sq.m	0.244	0.244
7	Average	Kg/sq.m	0.244	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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**TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2023-12-22-01 Date: 23-12-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden,
Vidyaranyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-23
Type of Mix : BC (Bituminous Concrete)
Source of Sample : 1st cross road Nanjappa Layout
Date of test : 22-12-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	475	474
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	$W5=W4-W3$	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	5.40	5.60
7	Average percentage	%	5.50	



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Lab ID : CP-RW-2023-12-22-01

Date: 23-12-23

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	34	34	7.2	92.8	90-100
9.5	66	100	21.1	78.9	70-88
4.75	104	204	42.9	57.1	53-71
2.36	50	254	53.5	46.5	42-58
1.18	48	302	63.6	36.4	34-48
0.6	38	340	71.6	28.4	26-38
0.3	34	374	78.7	21.3	18-28
0.15	25	399	84.0	16.0	12-20
0.075	40	439	92.4	7.6	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	33	33	7.0	93.0	90-100
9.5	84	117	24.7	75.3	70-88
4.75	80	197	41.6	58.4	53-71
2.36	60	257	54.2	45.8	42-58
1.18	48	305	64.3	35.7	34-48
0.6	34	339	71.5	28.5	26-38
0.3	37	376	79.3	20.7	18-28
0.15	33	409	86.3	13.7	12-20
0.075	43	452	95.4	4.6	4-10

* The results obtained are satisfactory as per standard requirements.

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : CP-RW-2023-12-22-01 Date: 23-12-23
Project Name : Package No-03 (Consists of 5 works)
Agency : M/s Karthik Enterprises, No.123, Aishwarya, 3rd Cross, Ramanna Garden, Vidyananyapura, Bengaluru-560097
Customer Reference : BBMP/EE/BTP/WO/78/2022-23
Date of Receipt : 22-12-23
Type of Mix : Tack coat
Date of test : 22-12-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.801	0.768
5	Weight of tack Coat (d=c-b)	Kg	0.021	0.02
6	Rate of spread of tack coat	Kg/sq.m	0.233	0.222
7	Average	Kg/sq.m	0.228	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.



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